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AND

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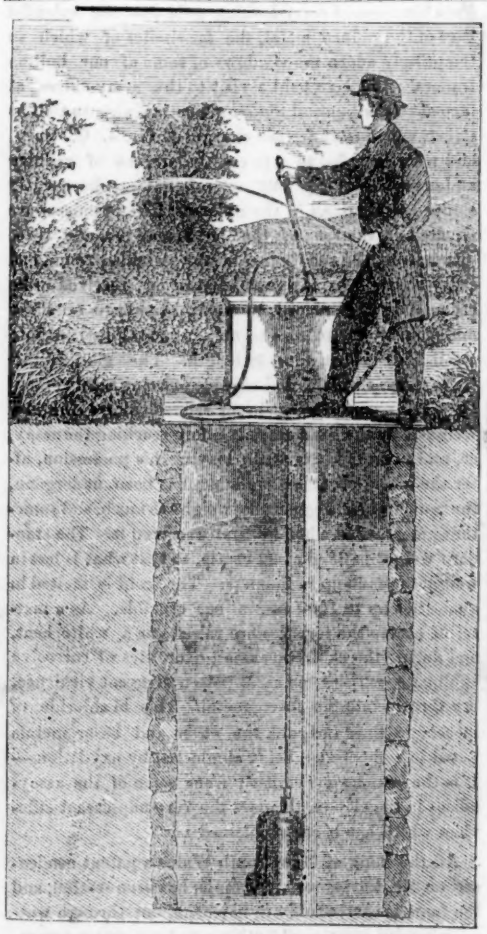

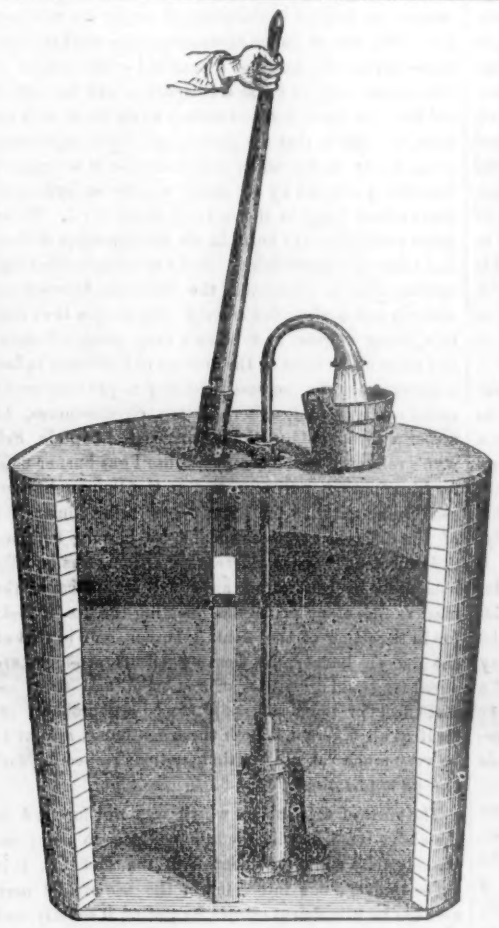

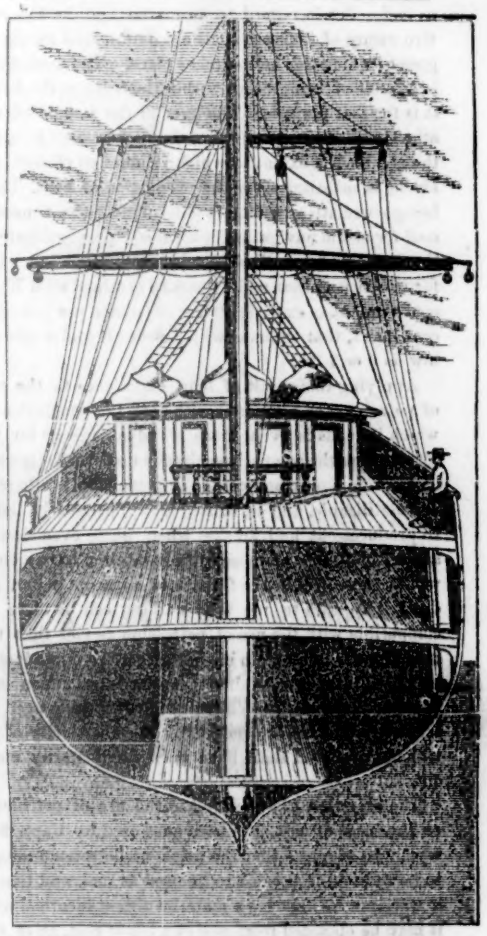

Recommendations of the American Submerged Pump,

OWNED BY THE AMERICAN PUMP MANUFACTURING CO., NEW YORK.

OFFICE, No. 40 DEY STREET.

Office of the American Ship Building Company, New York, Oct. 24, 1864.

I am very much pleased with the economy and simplicity of the American Pump, which I have examined with much interest. IT IS ADMIRABLY ADAPTED FOR SHIP PURPOSES, and from its GREAT POWER would do incalculable service in the event of LEAKAGE. It also works well in pumping, where the cargo consists of grain in bulk, and is free in its action.

AUGUSTUS WALKER, Marine Constructor.

New York, October 26, 1864.

To the American Pump Manufacturing Co.:

I have examined with much interest the working and results of the Double Action Force Pump which you are introducing in the market. For use as a Ship Pump and for Mining purposes, I consider it of great value, the results far exceeding anything of the kind presented to my observation, particularly for its GREAT POWER and SIMPLICITY. It will give me pleasure to recommend its introduction into the Navy. Please deliver as soon as possible the Pumps ordered by me last week, for the Mines of the Middlefield Fire and Building Stone Company of Massachusetts, and oblige, Yours, respectfully, CHARLES B. STUART, Consulting Engineer, U. S. N.

Office of the Neptune Iron Works, New York, February 6, 1865.

To the American Pump Manufacturing Co.:

I was very much impressed in examining the Pump manufactured by your Company. The originality of the design is in good keeping with its simplicity of construction—certainly very desirable qualities in all mechanical combinations. The extensive demand is the best proof of the popularity and favor it is receiving from the public. I have no hesitancy in recommending it to the inspection of those wishing THE BEST PUMP in the country.

CHARLES HUBBARD, JR.,
Superintendent.

Office of Donald McKay,
East Boston, Aug. 15, 1865.

Alvin Walker, Esq., Sec. American Submerged Pump Co.:

DEAR SIR:—In answer to your request for my opinion of your Patent Submerged Pump, will say, that for simplicity, compactness and durability, it has the appearance of being the BEST mechanical combination I have seen, having fitness combined with its simplicity, making it SUPERIOR to Pumps now generally used for general purposes on land. Also, well suited as a Ship Dock Pump, and, in my opinion, can be arranged to be readily used as a good Bilge Pump for Ships.

Yours truly,
HERMAN WINTER

CAMP PAROLE, ANNAPOLIS, Md., April 22, 1865.

Wm. Numson, Esq., President, Baltimore:

DEAR SIR,—The No. 2 Pump has been properly adjusted, and works to our entire satisfaction. Hoping you may be successful in introducing it to the public, we remain,

Very respectfully, yours, &c.,
JONES & CROWLEY.

(Letter from the President of Board of Common Council, City of Boston)

Boston, August 10, 1865.

A. Walker, Esq., Sec. American Submerged Pump Co.—

Dear Sir—In reply to your request for the results of the trial of one of your Pumps, I will briefly state the purpose for which it was needed, and the complete satisfaction attained. It was desired to clean out a well 42 feet in depth, in which there stood 10 feet of water; I had previously vainly tried several methods, in one of which one large Force Pump and as many buckets as could be used, succeeded in 10 hours in reducing the depth of the water to 9 feet, but beyond that nothing could be gained. I then put in one of your smallest Pumps, which drained the well completely in Six Hours: although the spring which fed the well yielded a stream of water about as large as a man's arm. I need not say that I consider the Pump fully capable of accomplishing what you claim for it. Yours truly, W. E. SOW

I can fully endorse the above statement. GH

PETROLEUM.

USE OF PETROLEUM OR MINERAL OIL AS STEAM FUEL IN PLACE OF COAL.

BY B. H. PAUL.

(Concluded from our last.)

This action takes place to some extent with all coals, especially when it is burnt under the unfavorable conditions obtaining in a marine boiler furnace, and it was the disregard of this circumstance which vitiated the results of the long and costly experiments made some years ago by Dr. Lyon Playfair, with the view of ascertaining the relative value of different kinds of coal as fuel. But in regard to steam navigation, the relative values of different coals are determined by the degree to which this action takes place. The more a coal is capable of being burnt within the furnace, the better it is for that purpose. The greater the amount of volatizable substance it contains, the less suitable it is, and the greater the extent to which production of soot and smoke is substituted for the production of heat. These being correlative results, it follows that the fitness of coal for steam navigation is inversely proportionate to the amount of volatilizable substance it contains. It is for this reason that while the duty obtained with Welsh coal sometimes exceeds 10 lbs. of steam per pound of coal burnt, that obtained with Newcastle coal is often as low as 6 or 7 lbs.

Applying this result of long experience to the case of petroleum as compared with coal, the conclusion to which it leads is even more disadvantageous for the former than the comparison already made on the ground of calorific power and cost. For petroleum is altogether volatilisable, and is, consequently, peculiarly liable to produce soot and smoke when burnt even slowly, and without any of those disadvantages to which it would be subject in the furnace of a marine boiler. Indeed, it appears to me that nothing can be more incompatible with the use of petroleum as fuel than the conditions which obtain in that case. No doubt it may be urged in answer to this that the introduction of a peculiar boiler is contemplated; but nothing need be said as to that contingency until the superiority of petroleum over coal shall have been satisfactorily made out.

The objection I have urged to the use of petroleum on the score of cost, has been answered by Capt. Selwyn, who suggests that the price of petroleum ought to be reduced if it came to be used as fuel, and that if it were not he believes a material almost identical with it may be obtained from coal at a lower cost, £9 or £10 per ton. So far as the price of petroleum is concerned I am disposed to consider any anticipation of a reduction as being extremely delusive, and the lower cost of coal oil would still leave it at a great disadvantage as compared with coal.

But if Capt. Selwyn, before assuming the part of a protecting ægis to a deluded inventor, had applied to his own conceptions that simple axiom, that "a whole is greater than its part," he would probably have seen a little more clearly the value of the whole project of reorganization which it is proposed to carry out in relation to steam navigation. Thus, for instance, the very richest oil-yielding coal known—the Leeswood cannel—yields about one-third its weight of oil. In producing a ton of oil from three tons of this coal, a considerable quantity of combustible gas, capable of generating a large quantity of heat, is lost, and there remains greater part of the carbon of the coal in the state of coke, amounting to more than one ton. Both the gas and the coke are of value as fuel, so that the real fuel value of the oil from three tons of coal is, in fact, equal to the total fuel value of that quantity of coal *minus* the fuel value of the coke and gas. But according to the representations made in favor of substituting coal oil for coal as fuel, one ton of oil is to do the work of five tons of coal—so that, according to this view, the fraction of the heating power belonging to the three tons of coal will be equal to the heating power of five tons of coal!! This is equivalent to the proposition that part of three is equal to five, an absurdity so glaring that it is truly wonderful that it should have escaped recognition even by an inventor.

The signal misconception which characterises the views of those who advocate the substitution of petroleum for coal in steam navigation, was illustrated in an almost equal degree during the discussion following the papers read by Captain Selwyn and Mr. Richardson at the United Service Institution. Thus, for example, Sir Edward Belcher referred to the oxyhydrogen flames as proving the fuel value of hydrogen to be much greater than that of carbon or of coal. Nothing could possibly be more irrelevant, and it can only be inferred that Sir Edward Belcher is not aware that the thermal efficacy of the oxyhydrogen flame is solely due to the fact that oxygen gas is used in the place of air for the combustion. This circumstance alone places the oxyhydrogen flame beyond the range of a practical consideration of the subject—but so far as a comparison can be instituted between hydrogen and carbon when burnt with oxygen, the fact is, that the thermal effect or temperature produced by carbon under that condition is far greater than that produced by an equal weight of hydrogen, these effects being in the ratio of about 10 : 7. When those substances are burnt in air, the difference in thermal effect is inappreciable. So far as the possible evaporative effect is concerned, the difference between petroleum and coal, in the amount of hydrogen they contain, is not so great as to have a very great influence; and since an increase in the amount of hydrogen in fuel is accompanied by increased liability to produce smoke sooad ot, it would, under existing circumstances, be rather a disadvantage than otherwise. Captain Selwyn's reference to the common fishtail gas burner used for illuminating purposes, and to the Bunsen burner, used in laboratories for heatings, as being illustrative of the different effects obtainable by burning combustible substances under different conditions, was equally infelicitous, and indicated an equal ignorance of the most rudimentary principles affecting the use of fuel; for in the flame of the fishtail burner, and in that of the Bunsen burner, the heating effects produced are equal for equal quantities of gas burnt, and the thermal effects or temperatures produced are probably little if at all different. Both these gentlemen appear to be very much "at sea" in their notions respecting fuel and its applications.

The view of this subject which was put forward in the above remarks will doubtless appear to many extremely trite and self-evident—but the fact that it is not so to every one interested in the use of fuel may perhaps be a sufficient excuse for stating it so fully, and the still more remarkable fact that some who have held such a view have been induced to abandon it, and to express themselves satisfied with the astonishing statements made as to the effects of petroleum when used as fuel, will show what strange results may be produced by vigorous assertion even of the most palpable absurdities. In fact, the whole of the arguments brought forward by those who contemplate effecting the entire reorganization of our navy, and of steam navigation, indicate a woeful deficiency of acquaintance with the subject, and well illustrate the proverbial danger of a "little knowledge."

There is, however, still room to hope that, by having recourse to that practical mode of deciding any question there may be in their minds as to the relative values of coal and petroleum, which I fully agree with them in thinking the only satisfactory test, and which is, unfortunately, a great desideratum in the present case, they will arrive at such a state of disillusion as will permit them to make a more useful application of their ingenuity.—*London Chemical News.*

According to the official account, the export of petroleum from all the ports of the United States to all the world up to the 31st of July of each year, the number of gallons for the last three years, were: 1865—7,010,650; 1865—15,071,581; 1863—15,-105,844.

THE AUSTRALIAN PROCESS OF SMELTING AND ASSAYING GOLD.

Until recently the practice of the docimastic art was confined to only a few persons in this city, to whom the various banks entrusted their large business, but lately five of the principal banking establishments have erected refining-houses and assay-offices on their own premises. Those banks are the New South Wales, Victoria, Union, Oriental, and Australasia. Gentlemen in every way compotant to ascertain the particular quantity of the baser metals which is contained in the godlen ere, and to separate the one from the other are engaged; and from the quantity of gold purchas d by the banks, their time is fully occupied in producing from the mass of dirty-looking gold dust the splendid bars of the refined metal, the fac-similes of which so temptingly adorn the windows of some of our bullion traders. We have paid a visit to the assay-offices at tacned to the Bank of the New South Wales, in Collins street, which is under tne charge of Mr. J. C. Bury, and were enabled to witness the process of refining and assaying some 3600 ozs. of gold, subsequently shipped to England in the Suffolk. The premises are situated at the rear of the bank, and include three apartments, the refining room, the weighing room, and assay room. On the gold dust being received in its crude state it is placed in small plumbago crucibles and merely melted. The molten metal is run into small bars about 6 in. in length. The gold in this stage is very brittle, and capable of being easily cracked. The quantities sent in for refinement are carefully weighed by the bank officials before reaching the assayer, and upon the bars again leaving his possession, after the whole process of refining has been undergone, the parcel of gold generally weighs as much, and sometimes more, than when he first received it. The standard weight is fixed at 22 carats, so that what is lost in weight is made up in fineness. The gold is melted in quantities up to 1200 ozs. in one crucible. As a matter of course the furnaces are raised to a white heat, and during the califaction small quantities of corrosive sublimate, which is an acrid poison of great virulence, are thrown into the fused metal. This bi chloride of mercury refines the gold, the other and baser metals found in combination being eliminated by oxydation.—It is the noxious gas emitted from some of the assay-offices in the city that causes the very unpleasant effluvium which has been complained of.

At the Bank of New South Wales a patent condenser, on Mr. Carpenter's principle, has been erected, and the fume is carried off, not in smoke, but through water, whereby what would otherwise be a great annoyance in a crowded part of the town is prevented. The colliquation of the gold when submitted to this excessive heat occupies about an hour-and-a-half, but a great deal depends upon the description of the metal being operated upon. The Ballaarat and Beechworth gold is the best, and that obtained from Back Creek is also very good. The purer descriptions occupy the shortest time in melting, while the samples from Pleasant Creek, which contain the greatest amount of the grosser matters, take the longest time. The sublimation of the metal is very trying to those engaged in the operation, owing to the exiessive heat to which the furnaces are raised, and also from the unpleasant fumes emitted. It is not often that an accident occurs during this process, but a short time since, at the Bank of New South Wales, one of the vessels filled with the liquid gold suddenly burst, and the contents poured out on to the floor and the furnace—fortunately those employed at the time were not injured. The gold, however, with the exception of an ounce or two, was saved. The "toughening" of the gold is ascertained by the procuring from the crucible a small button, which is flattened on an anvil, and if no cracks are visible the molten metal may then be poured into iron moulds. A small quantity of powdered borax is sprinkled on the top of each to give a smooth surface, and the cakes become at once solid. They are then plunged into a bath of sulphuric acid to remove any adhesive impurities, and afterwards into cold water. In less than five minutes from being moulded they are

capable of being handled, and are at once stamped with the number of the bar and the name of the bank to which it belongs. A small portion or clip is then screwed from each, which is afterwards assayed to determine the standard weight of each bar. After this process of quartation, the small pieces of gold are rolled into a cornet or spiral, and are weighed twice, so that the standard is thus obtained after the computation of the silver has been most accurately ascertained. —*Melbourne Illustrated Post.*

GAS.

ASBESTOS.

During sometime past great use has been made of Asbestos in machines for heating by gas. This substance was already known to the ancients, who used it, and who, carried away by their love of the marvellous, have enriched its history with such a host of fables, that this mineral acquired a celebrity which has been transmitted to our day.

Asbestos is found in masses in certain primitive rocks —it is of a fibrous nature, and its surface often silky in appearance. These fibres possess very little cohesive power, and resemble the filamentous products of the vegetable kingdom. It was this texture which deceived the ancients. "This linen," writes Pliny, "grows in the deserts of India, always arid and scorching—thus the climate where it is produced accustoms it to the action of fire. As the Asbestos is not affected by fire, so it resists the influence of charms and evil spells.—At banquets I have seen napkins of this linen thrown into a hot fire; when the grease and scraps have been consumed by the fire, the napkins have been removed more pure and bright than if they had been washed in water. Of this material are made shrouds for the obsequies of kings." In fact the ancients spun Asbestos, making sheets, napkins, head-dresses, etc., which were thrown into a fire when soiled, coming forth white, the foreign matters being destroyed by the fire without altering the texture. The Greeks and Romans thus made winding sheets for burning the bodies of illustrious persons and recovering the ashes free from every admixture. There was found at Rome in 1702, a funeral urn containing a skull with the bones burnt and the ashes enclosed in a cloth of Asbestos, measuring nearly two metres in length—72 in.—by one m. 60 c.—57 6 10 inches—in breadth.

The ancients manufactured from this material incombustive wicks, and when these became encrusted with oil they were plunged into a burning furnace to purify them.

In our days Asbestos has been made serviceable in a variety of ways. It has been manufactured, as of old, into incombustible cloths; in order to do this, fibres of linen or cotton have been intermingled with fibres of Asbestos, and the tissue submitted to the flame which destroys the vegetable fibres, and thus is obtained a cloth of pure Asbestos. This procedure has been abandoned, as the cloth produced is loose and coarse in texture.

In Italy has been discovered a precious variety of the Asbestos, the threads of which, of a shining whiteness, have the peculiarity of seeming to be wound up in the mineral mass they form as the silk in the cocoon from which it is drawn. If one of the ends of these mineral fibres is seized it can be drawn out to a length eight to ten times the size of the piece from which it comes. The thread is used to make cloth, and even lace, but unfortunately these tissues possess too little solidity to be of service. Incombustible paper and card board are also made of Asbestos, of such a character that by using ink properly prepared, for instance of peroxide of manganese and sulphuret of iron, the most precious writings can be harmlessly exposed to the action of fire. Madame Perpenti has presented to the Institute an entire work printed on Asbestos paper.

The inhabitants of the Pyrenees manufacture purses and garters from Asbestos, which they sell to the curious who visit their mountains. In Siberia, also, similar articles are made. Aldini has made clothes from this mineral to protect firemen from the action of the flames.

Asbestos is composed of several metallic oxides—lime, magnesia and alumina, united to silicic acid.—Chenevix gives the following analy is:

Silicea,	59
Magnesia	25
Lime	9
Alumina	3
Water, Iron, loss, etc.	4
	100

The different analyses made by Thomson, Berthier, Schmidt, Delesse, have given almost the same result.

Asbestos is widely spread in nature. It is found abundantly in Savoy, Piedmont, Tyrol, Hungary, Corsica, Colony of Cape of Good Hope, at Nerwinski in Siberia, and in America, in the State of New York. It also occurs in large quantities in Scotland and in the Alps and Pyrenees.

There exist numerous varieties of Asbestos—the *Luberiform Asbestos*, or *Asbestos trassi*, of Hauy is softer than the others—it imbibes water more readily—its ordinary colors are a dirty gray and a yellowish white—sometimes it is in thick and spongy pieces, it is then called, vulgarly, *mountain flesh*—sometimes nearly the texture of cork, it is then *mountain cork*—again it is hard and membranous, called *mountain leather*, or membraneous, and very flexible, when it is termed *mountain paper*.

In the neighborhood of Alais, the Luberiform Asbestos is found on the surface of the earth, in white and elongated pieces, which were for a long time mistaken for human bones. The Ligniform Asbestos, or *mountain wood* of Brochant, is of a reddish or brownish color, and resembles splinters of wood.

The Asbestos of Savoy, on the contrary, is silky and white as fine linen. Corsica yields a variety less beautiful, but of remarkable abundance. Dolomieu used it for packing minerals.

In the new gas machines, use is made of these different varieties according to the effects it is desired to obtain.—*Eclairage au Gaz.*

LIGHTING OF SHANGHAI.

On the 20th. of July last, we announced that the town of Shanghai was to be illuminated with gas. Already the English Company is in operation. Our compatriots who possess the French grant will not be much behindhand. Independently of the 500 public lanterns, the gas works will be constructed in France. Notwithstanding the exertions of England, the gasometer, the piping and the apparatus are being made by the house of A. Lacarrieri, Son & Co. * * We regard it as a serious mark of progress to find an old established house contracting so extensively for the construction of gas machines—it is the only means of sustaining the struggle with our neighbors.—*Eclairage au Gaz.*

Gas works and mains are being rapidly manufactured for the lighting of St. Thomas, in the West Indies. It was expected that everything would be completed by the end of September last.

LIGHTING OF ST. PETERSBURG.

The new Gas Works have produced during the present year 249,819,000 cubic feet of gas, of which, 226,665.100 cubic feet, have been sold—the surplus has been used for the gas works and the wastes.

The illumination consists of 4,767 public lamps and 45,332 private burners.

The receipts have been increased to 327,629 roubles, equal to 2-769 roubles for 100 feet. The expenses having been 333,987 roubles, the profit has been 293,641 roubles. —*Eclairage au Gaz.*

LEAKAGE OF GAS MAINS.

Messrs. Editors—Your correspondent F. J. L., writing from Washington, Pa., Sept. 18th, on the subject of leakage of gas mains, assumes that it is impossible to prevent leakage by any method of packing and caulking in use at the present time, and suggests the use of gum elastic rings between the shoulders of the sleeve, or bell end of one pipe, and the small, or spiggot end of the pipe to be joined, sufficiently thick to be compressed enough when laid to expand during cold weather, when the mains contract, to compensate and keep the opening closed, and in warm weather to compress more, so as to compensate for expansion, etc., etc.

The subject is one of very great importance, as all will admit when it is understood that the loss to gas companies is fully equal to an average of twenty per cent. of all the gas manufactured by them, by reason of leakage through the joints of mains. As assumed by your correspondent, this loss is inevitable for want of a better method of forming the joints, than the one which up to a late day has been universally practiced.

There is now in use a metalic joint that meets the case and perfectly secures against the waste caused by leakage of joints as made in the old way, which I beg to bring to your own, and your correspondents' attention, and which renders entirely unnecessary the further consideration of his questions and suggestions. I refer to the invention of Mr. R. C. Robins' joint for water and gas pipes.

This joint has been used successfully for two years past, and is now being extensively used in the Western States, and in the oil regions, where extensive aqueducts are being laid with this joint, for the conveyance of the oil from the wells to different points for shipment.

This new joint while it is found a perfect safeguard against leakage, costs less than any other. At the foundries where the pipes are made, a lead ring of the proper size and weight is cast into a groove or recess in the bell end of the pipes, while the other, or spigot end is cast with a short taper, of say a half inch. Thus the pipes when delivered are ready to go together.—The putting the pipes together is effected by means of an hydraulic jack and rods with a yoke. One man operating the jack, suffices to force home and make a joint in two minutes, when he removes the jack, rods and yoke to the next joint. The weight of lead required is 75 per cent. less—there is no yarn packing required or used, and the labor expended in laying the pipe is 75 per cent. less than in laying pipe in the ordinary way—and as there is no caulking to be done, of course there are no joint holes to be excavated in the trenches.

The joint has proved tight under all circumstances and in all weather. Depression or elevation of the joint does not cause it to leak, because the lead ring being in a groove in the bell, projects outward from the inner surface of the pipe sufficiently, so that if its edge is mashed by the upward or downward movement of the joint the lead is forced around to fill up other portions of the groove, where it has been relieved of pressure by the depression or elevation, on the opposite side. No caulking can make a lead packing tight, as the action of the caulking tool makes the lead in a short time a spongy, broken mass of rubble, and of course the ordinary expansion and contraction loosens the joint and causes it to leak, whereas by the new method, the lead ring is never disturbed except by the steady lateral pressure, caused by forcing the tapering spigot end of the pipe home, *past the taper*, into the bell end, thus the spigot end, above the taper, and the lead ring form together a perfect sleeve joint, which upon the contraction of the pipes by cold, admits of a slide of half an inch, growing tighter as it slides, and *vice versa* when expanded by heat, or warm weather.

It will be seen, therefore, that as there is but one inch of contraction in one hundred feet, and as the sections of mains are but twelve feet, the distance for the pipe to move in the lead ring is but about an eighth of an inch. This gives about three-eighths to spare for the pipe to move in the ring, before the joint can leak.—Proofs of these facts exist in the form of statements of engineers, founded on experience, many of whom now freely admit that this simple and inexpensive devise is constructed on true scientific principles—and it is the opinion of some of them that it is of sufficient importance to justify gas companies, whose pipes are laid in

the old manner, in taking them up and replacing them with pipes that is provided with this joint. T.

THE SECRETS OF THE DEEP.

BY PROFESSOR ANSTED.

What has become of the innumerable bones and teeth and scales of fishes that, for all the years gone by, have died in the broad Atlantic? Where are the remains of the many ships that have been swallowed up by the waves? Where the gravel heaps left behind by the icebergs that have melted in floating down from the polar seas? Where are also the substances drifted across by the Gulf Stream and other currents that traverse the ocean? Nothing—not one solitary indication of all these, but in their place an impalpable, tenacious mud, everywhere extending, and made up of little particles of carbonate of lime secreted by countless myriads of animalcules, the food perhaps of the whale and fishes of the surface, but more probably the sole inhabitants of those great depths which other animals more highly organized would in vain attempt to penetrate. Truly may we say that the secrets of the deep are mysterious and grand, and that the search after them repays the labor of investigation. By the investigations of modern observers we find laid open for our observation the great valley of the Atlantic, descending, by a succession of broad terraces and step like cliffs, to a gully or ravine some 70,000 feet below the ridges of the Andes and Himalaya Mountains. Like a vast amphitheatre, these terraces appear to surround a central comparatively small arena. On our principal upper floor, ten to fifteen thousand feet below the present sea level, we have discovered the inhabitants, and already all trace of our world above is lost; all high forms of organic life are absent; and nothing remains but skeletons of the simplest animals, of which it may almost be said that but one or two specific forms can be determined—certainly nine-tenths of the solid material consists of the remains of one species only. What may be expected when the deeper levels are dredged, and we bring up the materials of which they consist? What will be the direction of the line of deepest depression, and how will it agree with the adjacent line of greatest elevation? What will be the inhabitants of that part of the ocean botton fully double the depth, concerning which we have only very recently obtained information, where the pressure of the water is nearly seven tons to the square inch of surface, and where each cubic foot of water probably occupies less space by one hundred cubic inches than it would do if lifted to the surface, owing to the weight of the superincumbent column of water resting upon it? These ane queries yet unanswered, but to msny, if not all of them, we may expect to receive satisfactory answers ere long. The facts that remain to be determined are hardly more difficult to make out than those we have already masterd; and the investigations, when once fairly set on foot, will probably soon leave little to be desired. The soundings that formerly could not be attempted, except in the calmest weather, and with the certainty of half a day's severe and incessant labor, are now completed, not only in ordinary weather but even in a fresh breeze and disturbed sea, in a couple of hours; and whilst, according to former methods, there was more probability of enormous errors than of accurancy, the result is now to be depended on, in almost every case, within very moderate limits.

A NEW AND HARMLESS REMEDY.

It is well known that nearly every animal and insect has an unconquerable aversion to some particular plant, and that what will kill certain animals, or vermin, can be eaten with impunity by others. The oil of pennyroyal will drive every mosquito out of a room if scattered about, even in very small quantities. The inner bark of the white ash will, if brought in contact with a snake, stiffen him like a stick in an instant—and a bit of fresh tobacco placed on his tongue will kill him as dead as if struck by lightning, while sheep and goats feed upon it, if pressed. with entire impunity. Roaches are exterminated by scattering a handful of fresh cucumber parings about the house. No fly will light on a window which has been washed with water in which a bit of garlic has been boiled. The leaves of a common Japanese plant, which can be eaten in any quantity by the human race, kills every species of rat, mouse and creeping thing, and forms the basis of "Costars" and all other effective "rat exterminators." We might go on with the list almost indefinitely, but have quoted examples enough for our purpose. Alexander Robertson writes to the Canada Farmer: "I have for the last four years proved to my satisfaction that the "Wild Peppermint" is a sure and reliable exterminator of rats. In proof of the fact, I will state the result it has had with me. Four years ago my barn was regularly infested with rats—they were so numerous that I had great fears of my whole grain crop being destroyed by them after it was housed—but having about two acres of Wild Peppermint that grew in a field of wheat, after the wheat was cut and harvested, the mint was cut and bound with it, and it drove the rats from my premises. I have not been troubled with one since, nor am I at present, while my neighbors have any quantity of them. I feel confident that any person who is troubled with these pests, could easily get rid of them by gathering a good supply of the mint and placing it around the walls or base of their barns.—*Alta Caltfornia.*

"BIG TREES."

Our fellow citizens of the Golden State have a curious but pleasing way of honoring their favorite and distinguished visitors. It is by giving their names to the mammoth trees—*Sequoia Gigantea*—first correctly classified by Prof. John Torrey—which grow in groves and singly, in their primeval forests. The name is cut in marble, or stone, and imbedded in the tree, which grows around and firmly secures it.

The following measurements of the height and circumference of the most noted of the "big trees"—*Sequoia Gigantea*—by Dr. C. T. Jackson, and Mr. J. Meader, Aug 2d and 3d, 1865, from the San Francisco Mining Press, will prove interesting to our readers.

Names of the trees.	Height in feet.	Circum. 6 ft. above roots.
T. Starr King	366	50
General Scott	327	45
General Jackson	320	42
Two Sentinels	315	—
Salem Witch	310	—
Trinity	308	48
Mother of the forest	305	63
Wm. C. Bryant	305	49
Henry Ward Beecher	291	45
Granite State	286	50
General Washington	284	52
Abraham Lincoln	281	44
Bay State	280	48
Old Kentucky	277	45
Empire State	275	50
Andrew Johnson	272	32
Daniel Webstes	270	49
Mother and Son	299	64
Edward Everett	265	46
Pride of the forest	260	50
Vermont	259	41
John Torrey	259	35
Arbor Vitae Queen	158	31
Beauty of the forest	258	—
Henry Clay	241	74

Asa Gray, nearly as high as the John Torry.

The big stump, covered by the Stump House, has a mean diameter of 23 feet 1¾ inches, and its least possible age is 1,380 years, allowing only 10 annual rings per inch. The extremes are 10 and 60, and computing the mean 35 per inch, the tree will be 4,830 years old.

GUN COTTON IN THE AMERICAN MINES.

The application of Messrs. Prentice's (Stowmarket) gun cotton is becoming very general in the mines of California and Nevada, the greatest satisfaction being expressed with regard to it in every instance in which it has been employed. At the New Almaden Quicksilver Mines it has been largely used, and Mr. C. E. Hawley, the chief engineer, reports that the gangue rock of the Almaden vein is very hard magnesian limestone, in many places worth 30 dols. per foot—lineal—to work in ordinary drifts of 6ft. by 5ft. In other parts of the mine the rock is partially decomposed and easy to work. To his surprise, the miners in soft rock were more desirous than any others of using gun cotton He considers that the most valuable quality it possesses for their use is its freedom from smoke. This vein is extremely irregular, and its workings of great extent. Good ventilation cannot be maintained everywhere, and smoke of the richest "labores" in the mines ere now seriously delayed by the smoke of blasting powder. The perfect freedom from smoke of the gun cotton would warrant the using a limited quantity at considerably greater cost than powder. In Nevada City district and Calveras the opinions expressed are equally favorable, and may predict that in the Pacific States the use of gun cotton for mining purposes will eventually be universal.

The marble stones which composed Solomon's Temple were said to be forty cubics long, twelve thick and eight high. Supposing a cubic to be eighteen inches, which is the lowest estimate, they would be sixty feet long, eighteen feet thick, and twelve feet high. And supposing a cubic foot of marble to weigh 2,707 ounces one of these stones weighed 2,752,038 pounds and 12 ounces. And supposing one man to be able to raise 200 pounds, it will require 13,760 men to raise one of these, and also a little boy who could raise 38 pounds 12 ounces. And suppose one man to require a square yard to stanp upon, it would require 2 acres, 3 roods, 11 perches and 12 yards for them to stand upon while raising it, besides a place for the little boy to stand. What floats must have been necessary to carry them across the sea to Joppa? And what kind of teams, as well as wagons, do you suppose they had to carry these stones from Joppa to Jerusalem, which is about thirty miles, and a mountainous country? And what skill was necessary to square and dress these immense stones, so that when they were brought togother they fitted so exactly that they had the appearance of being solid stone.

PRODUCTION OF STEEL BY MEANS OF GASES.

M. Aristide Berard brought before the Academy of Sciences, at its sitting of June 26, his method of forming steel by means of gases. It consists in alternately oxidising and reducing cast-iron in a furnace suited to the purpose. The oxidation is produced on one portion of the cast-iron, by the introduction of atmospheric air, and the reduction on another by a mixture of hydrogen and carbonic oxide, previously freed from sulphur. After twelve or fifteen minutes the processes are reversed, the portion subjected to oxidation being submitted to reduction, and *vice versa*. Any oxygen evolved is absorbed by burning coke placed in a suitable position When this alternate action is found by trial to have been continued long enough, the operation is stopped, decarbonation being the terminating proces. During oxidation the bases of the metals proper and of the earths are oxidated—the sulphur, phosphorus, &c., form acids, and escape. During reduction, the iron is brought to the metallic state, and the earths separete as scoria, any remaining sulphur, phosphorus, &c., being eliminated as acids, and some carbon is restored to the iron. A high temperature is produced during oxidation, a low during reduction. Ten or twelve tons are manipulated at each operation in the establishment which has been formed by the inventor—and the steel produced is said to have all the properties of the ordinary kind.

IMPORTANT NOTICE.

To Advertisers.—Our paper offers a superior medium as an advertising agent, to all those who manufacture or sell machinery or appliances of any kind for Gas, Mining, Water, Sewerage, the production or purification of Oils, &c. &c., not so much on account of a wide-spread circulation, as from the fact that it goes directly to the hands of those who are constantly using and requiring machines and improvements for these branches, and who look through our columns for information where to procure them. The class of people who read our paper not only peruse our pages of reading matter, but read the advertisements as well, for the reason that they are directly interested in all things pertaining to their business. We therefore ask, with confidence that we can do them justice, all parties having machinery or improvements of any kind for either of the objects to which our paper is devoted, to send in their advertisements and avail themselves of these advantages. It will be observed that our tems for advertisers are very reasonable.

It is said that between 1836 and 1864, 28 years, 73,356 persons emigrated to this country from Norway.—This emigration first became considerable in 1849, and reached its maximum in 1861. Two-thirds of these emigrants went to Canada. From 1820 to 1860, 5,530 persons came here from Denmark, and from 1851 to 1860, no fewer than 14,865 left Sweden for the same destination. It is believed that this emigration has been the result not so much of poverty as of religious excitement. A large number of the emigrants, it is noted, were Quakers, Mormons, or members of other peculiar sects, and nearly all those from Denmark were converts to Mormonism.

If a train moving at the rate of twenty-five miles an hour were stopped instantaneously, the passengers would experience a concussion equal to that of a body falling from a height of nineteen feet—they would be hurled against the sides of the carriage with a force equal to that they would be exposed to in falling from a window on the second floor of a house. If the train were moving at the rate of thirty miles per hour, they might as well fall from a height of three pair of stairs, and an express train would, in point of fact, make them fall from a fourth story.

A Warsaw journal announces that the plan for a telegraph line between Russia and America has been approved and signed by the Czar. The Russian Government undertakes to complete the line as far as Nicolajewsk, the remaining portion—from Nicolajewsk to San Francisco—being at the charge of the American Company. The capital of the latter amounts to 10,000,000 dollars, and bonds representing 8,434,600 dollars have already been issued. It is intended that this route shall be finished in five years.

They kill pigs by steam in Chicago. A great iron claw, with five fingers, hooks out the pigs which are quarrelling in the pen below, and lifts the porkers to a gibbet near by, and then plunges them again into scalding water. By the machine fifty porcines are killed, scalded, scraped, cleaned, split and hung in rows ready for salting within an hour.

They have succeeded in catching fish in France by means of an electric light. The light was produced by a powerful electro-magnetic machine constructed by Monsieur Bazin, the well-known engineer. The experiment was conducted by M. Bazin on board the Andalouse, in the presence of fifteen hundred persons. The light, in a lantern, was submerged in the water, and the fish came to it in shoals while the fishermen caught them in their nets. M. Bazin is shortly to proceed to Bona, in Algeria, and establish a coral fishery by the assistance of his electric light. He proposes in the meantime to descend full four hundred feet into the sea, and explore the "depths of the ocean" with his submarine instruments.

THE PROFIT OF PETROLEUM.

The expense attending the production of petroleum is so trifling, says the San Francisco Mining Press, that the Nation profits by it more than from any mining or railway operations. The income of $75,000,000 will not cost probably over $2,000,000 in expenses. Gold, silver and coal mining costs about sixty to seventy per cent. for working purposes. The petroleum product of the United States promises to rival in amount the whole cotton crop of the South.

The Germans do not have the word "churchyard and burying ground" to designate their places of interment—they use the beautiful and suggestive expression, "God's Acre" and the "Court of Peace."

Gunpowder and Electricity.—It is stated as a remarkable fact that electricity travels so rapidly that it may be sent through gunpowder without igniting it—and it is only when the current is retarded that an explosion takes place.

Luminous Hats.—A hat maker in London has obtained a patent for luminous hats, which will preserve, it is claimed, their wearers from the danger of being crushed by carts at night, and promises economy in the lighting of the streets.

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For Filling Wet Gas-Meters, cheaper, in the long run, than water.

Seven years of success!

Six years in general use in works using it, to the exclusion of all other fluid, and driving the dry meter out of use, enables us to recommend the patent with perfect confidence.

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For Gas, Steam and Iron Manufactures.

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Purifiers—19 feet 4 inches long, 8 feet 4 inches wide and 3 feet 1 1-2 inches deep, in the clear, with seven layers of sieves.

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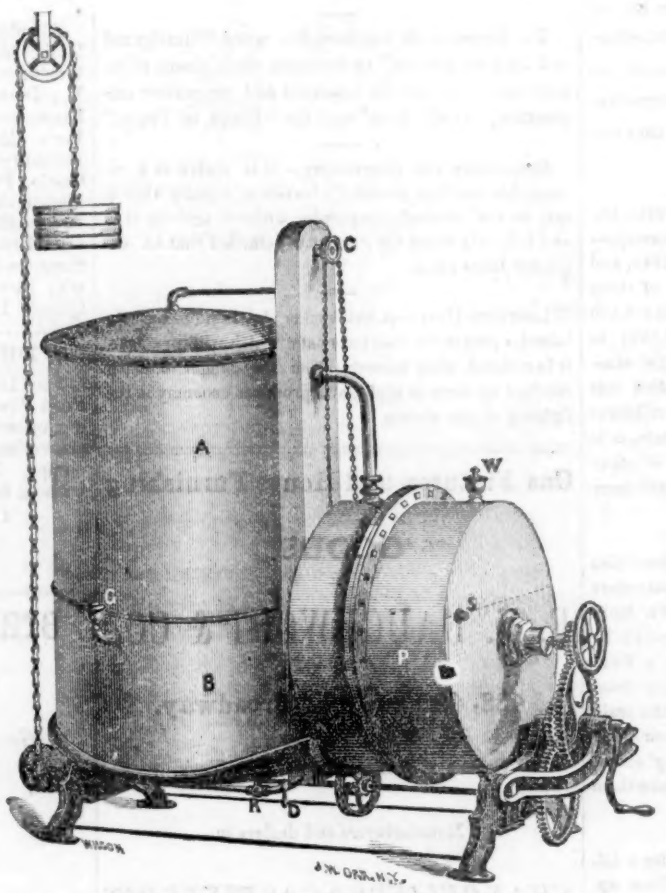
Dwellings. Stores, Factories and Public Buildings.

THE GAS GENERATED BY THIS MACHINE

Is a mixture of the vapor of hydro-carbon with common air. The mechanical devices employed are such as, from a long experience and critical examination into the nature of the elements brought into use, seem best adapted to secure a certain and satisfactory result. GASOLINE, the liquid employed, is the more volatile portions of Petroleum, of a specific gravity of 0.6587. This liquid exposed to the action of this machine is vaporized, and a close mechanical mixture of the vapor with common air is effected. The value of the gas produced, its permanency, its illuminating quality, and freedom from liability to condensation, depend almost entirely upon the perfect and uniform character of this mixture. Hence the great importance of mechanical means adapted to secure all the conditions requisite in a Portable Gas Machine.



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This machine will produce the most brilliant and steady light, without Fire or Heat, and is warranted to operate in every respect as represented.

The EMPIRE STATE GAS MACHINE is the most SIMPLE and EFFECTIVE MEANS KNOWN FOR PRODUCING GAS WITHOUT HEAT.

Its action is automatic, feeding itself with constant supplies of Gasoline, thus securing steady and uniform supplies of Gas. The gas produced is equal to the best known Illuminating Gas. It is as economical as any other, and is adapted to a wider range of use for Lighting, Heating and Mechanical purposes. It will maintain its illuminating power under as great a degree of cold as any other. It is free from danger with the ordinary care in using gas. Its remarkably pure and steady light is pleasant for the eye. It renders it easy for persons living remote from street gas pipes to enjoy the luxury of a pure GAS-LIGHT, at a COMPARATIVELY SMALL COST, AND WITH LITTLE TROUBLE.

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For Wet Meters, Gasoline Machines, Hydraulic Presses, &c.

We warrant our Glycerine free from acid and not to corrode the Meter metal, or to congeal or freeze at a stated temperature—also, not to evaporate to any extent The advantages and savings derived from the use of our fluid can be testified by many Gas Light Companies which we have supplied. We only refer to the certificates of H. J. Miller, Esq., President of Cincinnati G. L. and Coke Co., and Dr. J. Lawrence Smith, Professor of Chemistry in the Louisville College, and President of the Louisville Gas Co.

HARTMAN & LAIST,

Office No. 71 Main street, Cincinnati —Chemical Works on Providence st, and Miami Canal, near Findlay st.

CERTIFICATE.

Office Louisville Gas Co., Louisville, June 28, 1865.

This is to certify, that the Louisville Gas Co. have used for about two years, the Glycerine prepared by Messrs. Hartman & Laist of Cincinnati, in their Wet Meters, and have in all instances found it to give most perfect satisfaction. Prior to the use of the above Glycerin, we had employed that manufactured by other parties, and we consider H. & L.'s superior to any we used.

J. LAWRENCE SMITH, President.

Office Cincinnati Gas Light and Coke Co., July 7, 1865.

This will certify, that Messrs. Hartman & Laist of Cincinnati, furnished this Company with Glycerin for Wet Meters some two years since It has proved very satisfactory, having resisted the action of frost during two winters and evaporating not more than six per cent. per annum, as guaranteed by them. The standard being, for density, 15 deg Beaume's scale. They were the first to introduce it practically to this Company H. J. MILLER, President.

☞L. BRUCKMAN, 107 Warren street, up-stairs, Agent for New York.

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For Filling Wet Meters,

AND OTHER PURPOSES.

We solicit attention to Glycerin for filling Gas Meters in place of high wines, or any other substance — Our Glycerin is superior to anything ever used for the purpose, being entirely free from corrosive property, and made from the same material as the finest article for medicinal use. It will not evaporate, consequently there will be no further expence necessary in filling Meters. Glycerin of 15° Baume will stand a temperature of 14° below zero without congealing, and the more concentrated the greater degree of cold it will stand.

We have been engaged in Manufacturing Glycerin the past 8 years, and from our advantage in material and the large amount we make, are enabled to offer it lower than any manufacturer in this country. Finding the wide range that Glycerin would assume in Pharmacy, the Arts and for mechanical purposes, we have entered into the manufacture of articles adapted to the various uses and are now prepared to offer it adapted to every purpose for which it can be used at less than any article now in competition with it. We annex the following letter from S. S. Stratton, Esq., to show practically its advantages.

OFFICE OF THE COVINGTON GAS-LIGHT CO.
COVINGTON, KY., Feb. 18, 1864.

MESSRS. W. J. M. GORDON & CO.:

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I have had it in constant use for the past four months, and during that period the thermometer has ranged as low as 14o below zero, and after careful examination, I have found the fluid in the same condition as when first put in the Meters, and without the slightest discoloration.

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In fact, I can cheerfully recommend it as being cheaper and better than any other Fluid or Mixture now in use.

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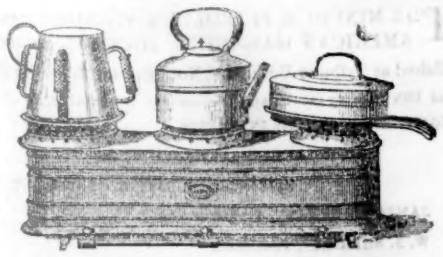

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Positively guaranteed free from Smoke or Smell.

Will Heat Offices, Parlors, Dining, Sleeping, and Bat Rooms. Also,

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Will BOIL, BROIL, ROAST, BAKE, TOAST,

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Their WONDERFUL NEATNESS, CONVENIENCE and ECONOMY can be seen at a glance.

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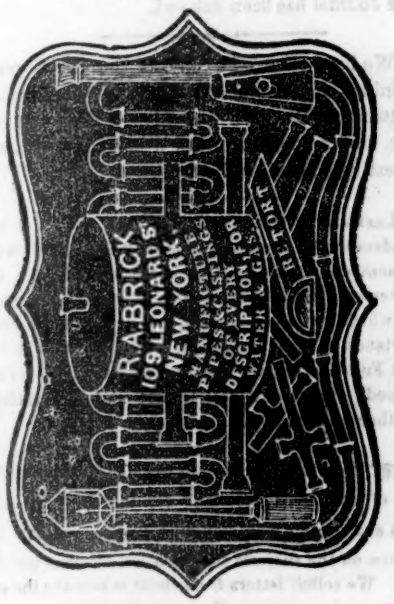

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AND

AMERICAN GAS-LIGHT JOURNAL,

PUBLISHED ON 2D AND 16TH OF EVERY MONTH.

JAMES W. BRYANT, } EDITORS.
DR. C. W. TORREY, }

THURSNDAY, NOV. 2, 1865.

☞ We shall have twenty or thirty vols. of our last year's issue bound, which we will furnish to subscribers at $3 each, or non-subscribers at $4.

☞ Our subscribers would confer a favor upon us by remitting *checks, or Post Office Money orders*, as we are frequent losers by money sent by mail.

☞ In consequence of the illness of our Publisher, and its unexpected continuance, the issue of the Journal has been delayed.

We have received a copy of the Oil News and Mining and Manufacturing Journal, published in Pittsburgh, Pa. We welcome it among our exchanges, and commend it to all who wonld read an interesting and ably edited sheet.

LEAKAGE OF MAINS.—We call the attention of our readers to the communication of "T.," which we give in another column on this important subject. If the statements in this correspondents paper can be verified, of which we have no doubt, it is a matter of first importance to gas companies. R. C. Robbins & Co. of 218 Fulton street, are the proprietors of the invention named. See their advertisement and illustrations in another column.

☞ We should be pleased to make our journal an organ of intelligent discussion for those of our subscribers and readers who may wish to gain, or give information on the subjects to which our columns are devoted. We solicit letters from those who make the study of gas a pleasure as well as a profession.

GAS COAL.

The very great difference in value of coal for making gas, not only from the same mine, but from the same vein, has surprised us. We observed one remarkable evidence of that fact in a specimen of coal from an Ohio vein, where strata of hard and soft were so simi lar in appearance, that an unpracticed eye would not detect any difference. Analysis is the only way to ascertain the true value of coal for any specific purpose, and that analysis should be one beyond the laboratory. Chemists all admit that their most accurate tests in the laboratory cannot be relied upon for large operations. Not less than results from ten tons of coal should be satisfactory, and the test made in the same manner that coal is used generally.

Our advertisement of the Cameron Coal with the analyses made by the Philadelphia Gas Works, (the largest institution of the kind in our Country,) and the Manhattan Gas Company, second to it, attracted our attention and gave us a favorable impression of its value. Subsequent inquiries have shown that it is a most valuable gas coal, and the purchase of forty thousand tons by the Philadelphia Gas Company, is confirmation of our ideas. And we also see that the American Institute has awarded them a medal for the best coal.

We have never approved the Provincial coals for gas works—there is a difference in them but all more or less possess excess of sulphur, and it is a difficult and very unpleasant task to purify them sufficiently to deoderize the gas from its obnoxious smell. Unfortunately for some of our companies who stored their yards with large quantities of Provincial coal, spontaneous combustion often ensued, and the expense of removing some thousands of tons, and having other thousands of tons burned up in the pile, makes a greater cost of the coal than if such coal as the Penn, or Westmoreland, or the Cameron, was purchased at the difference of price.

We observe by the Herald that a pile of seventy thousand tons of Provincial coal has taken fire by spontaneous combustion in the yard of the Metropolitan Gas Works. The report is an exaggerated one but the spontaneous combustion is a fact, and we think will induce the company hereafter to purchase more of the Pennsylvania coals above referred to, than they have done heretofore.

AMERICAN INSTITUTE FAIR.

The Fair of the American Institute has closed, and we notice that among many of the parties to whom premiums have been awarded, are advertisers in our columns. We give below a few of the most prominent awards.

The American Water-proof Cloth Company—John F. Green, Agent—a gold medal.

Wharton's Safety Railroad Switch, was awarded a first premium for model exhibited.

American Agriculiural Works, No. 17 Cortlandt st, for Combined Corn Plow and Cultivator—a bronze medal.

American Agricultural works, for Two in-one Mowing and Reaping Machine, for superiority of combination—a silver medal.

Architectural Iron Works, New York for a Sheet Iron Safe and Iron Venetian Blind—a bronze medal.

Chambers & Brother, Philadelphia, Pa., for specimen of Common Brick—a silver medal.

L. H. Gautier, Jersey City, for the best Fire Brick—a silver medal.

B. Kreischer, No 53 Goerck st., for Fire Brick Materials—a bronze medal.

Cameron Coal Company, No. 71 Broadway, for superior Bituminous Coal—a silver medal.

Ball, Black & Co., Broadway, for a Gold and Silver Service of Plate—a gold medal.

Julius Ives & Co., No. 18 Beekman street, for patent Lamps, the mode of filling and lighting new and good—a silver medal.

Petroleum Stove Co.—S. T. McDougal, Pres't.—No. 171 Broadway, for the best Petroleum Stove—a bronze medal.

Lesley & Elliott, No 494 Broadway, for the second best Kerosene Stove—a diploma.

Radley, McAllister & Co., No. 162 Greenwich street, for Locomotive Head Lights—a silver medal.

Woodward Steam Pump Manufacturing Co., No. 95 Bleecker street, for the best Steam Pump—a gold medal.

Wm. D. Andrews & Bros., No. 414 Water street, for the best Centrifugal Pump, for draining, mining and bilge pumps—gold medal.

J. D. West & Co., No. 40 Cortlandt st., for the best Pumps for farming and gardening—a silver medal.

M. J. Campbell—A. Campbell, Agt—No. 56 Gold street, for Campbell's Country Printing Press—a gold medal.

D. T. Buckley, Manchester, N. H., for a Newspaper Folding Machine—a silver medal.

Chambers, Brothers & Co., Philadelphia, Penn., for a Clay Tempering Brick Making Machine—a gold medal.

George H. Kitchen & Co., for Empire Gas Machine—a silver medal.

E. D. Bassford, Cooper Institute, N. Y., for Silver Plated Ware—a bronze medal.

Chase & Co., No. 524 Broadway, for Iron Stools, Garden Vases, Hitching Posts, &c.—a bronze medal.

American Water-proof Cloth Company, No 43 Barclay street, for Lap Robes, Table Covers, Car and Carriage Seating and Carpeting—a gold medal.

One good Havana cigar is found by Dr. Richardson to yield, when its smoke is condensed, a sufficient amount of poisonous matter to induce active convulsions in a rabbit, and six pipes of common shag tobacco will yield sufficient poison to destroy a rabbit in three minutes.

They have a novelty in the refreshment line at Vesord, a railway station in France, travellers being provided for about fifty cents, with a basket containing three kinds of meat, a bottle of wine, bread, and dessert. The empty dishes and baskets are left at the next station, to be returned.

PETROLEUM REVIEW.

Oct 17.—Crude has been in moderate demand and steady at 32 to 33c. Refined is firm and in fair demand at 52 to 55c, the latter rate for white, and 70 to 72 for free.

18.—The market is moderately active and firm at 32½ to 33c. for Crude; 53 to 55c. for Refined in bond, the latter rate for White, 71 to 73c. for do. free.

19.—Receipts to-day, 3,731 bbls.; the market is heavy and lower; we quote Crude at 32c.; Refined in bond, 52½ to 53., and do free, 71 to 73c.

20.—There has been only a moderate inquiry for Crude during the past two or three days, owing to the scarcity of vessels to load for Europe, prices were weak and at the close heavy at 31½ to 32c. Refined in bond is scarce, in demand and firm, closing at 52 to 54c. Free oil is quiet at 70 to 72c. At Philadelphia there were twelve vessels loading for Europe.

21.—The market is inactive and prices are nominal at 32c. for Crude, 50 to 52c. for Refined in dond, and 70 to 71c. for Refined free.

23.—The market is dull, and prices are nominal at 32c. for Crude; 52c. for Refined in bond, and 70c. for do free.

24.—Crude is dull and heavy at 31½ to 32 cts. Refined in bond is firm at 52½ to 54 cts. Refined, free, is dull at 70 to 72 cts.

25.—The market for Crude is dull and heavy at 31½ 32 cts. Refined in bond is firm at 52½ to 54 cts. Refined free is inactive at 70 to 72 cts.

26.—The market is quiet, but prices are without essential change. We quote crude at 31½ to 32 cts. Refined in bond at 52 to 54 cts. and do. Free at 70 to 71 cts.

27.—The market is very dull, and prices are nominal we quote Crude at 31½ cts. Refined in bond, 52 to 54 cts. and do. Free at 70 to 73 cts.

28.—The demand has been fair, and the market a shade firmer, sales of Crude at 32 cts. Refined in bond, 52 to 54 cts. and do. Free 70 to 72. cts.

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13th and 14th streets, near Avenue C.

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H. M. BAILEY, Superintendant of Works.
J. WALTER CLARK, Accountant. J. M. DUCLOS, Arch.

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To take charge of a large bituminous coal properety, now mining three hundred tons of coal per day, with facilities for increasing the production to one thousand tons per day—one thoroughly acquainted with bituminous coal mining and capable of directing and taking the full supervision of such an establishment—must be a good accountant and correspondent, and understand the business in all its branches—to such a one, who must come well recommended, a lucrative position can be given. Address, with name, residence and references, stating salary expected and where last employed, L. H. S., box 456 Post Office, New York.

☞London Mining Journal, please copy.

NEW YORK MINING EXCHANGE.

NEW YORK, Nov, 1, 1865.

	Bid.	Asked		Bid.	Asked
Copper Stock.			***Gold Stock.***		
Aztec	7		Benton	1	1¼
Bedford	1	1	Consol'd Gregory		28¾
Boston	4⅛	5	Corydon	—	3
Caledonia, A. P.	10	12	Gunnel	3¾	4¾
Canada	3¾	4	Great Western	—	8
Carp Lake	3	5	Hope	—	9
Central	—	—	Isaac's Harbor	¾	⅞
Columbian	—	24	Manhattan	—	9
Copper Falls			Mariposa	44	44¾
Clifton	—	$1	Montana	¾	1
Dacotah	—	5½	New York	2½	3
Derby	¾	1½	N. Y. & Nova Scotia	¾	1¼
Douglass	—	—	Quartz Hill	9¾	10
Evergreen	18¾	20	Quicksilver M'g Co	81	82
Flint Steel River	12	13¾	Rocky Mountain	—	10¾
Frue	2¾	5	Smith & Parmelee	7	12
Grand Portage	—	—	***Coal Stocks.***		
Hancock	12½	14	American	98	100
Hamilton	—	6	Ashburton	—	25
Hilton	5	6	Central	62	65
Hudson	1	2	Cumberland	61	62
Huron	32	33	Del & Hud. Canal	206	208
Indiana	8¾	9¾	*Hampshire & Balt.	104	110
Isle Royale			Pennsylvania	213	215
Keweenaw	—	6	***Lead Stocks.***		
Knowlton	7	10	Bucks County	⅝	¾
Lafayette	1	2	Clute	1⅝	1¾
Manhattan	—	—	Erie	—	20
Mendota	—	—	Macomb	3¾	5
Merrimac	4¼	5⅜	Placentia Bay	1⅝	1¾
Minnesota	33	37	Sussex	⅝	¾
New York, A. P.	2	3½	Wallkill	3¾	6
N. J. Consolidated	4	4¾	***Iron Stocks.***		
Norwich	—	6	Copake	8	10
Ogima	5	6¾	French Creek	⅝	1
Ontonagon	3	4⅜	Teal Lake	4½	6
Penn	—	11½	***Miscellaneous.***		
Providence	1¾		Rutland Marble	17	20
Quincy	96¾				
Reliance	1¾				
Rockland	12½				
Superior	8¾				
Sharon Consolidated	—				

* *Ex. div.*

TO GAS COMPANIES.

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Address Gas Fitter, at this office. [37-39

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☞ *Very Superior Bituminous Coals,*

At Elizabethport and other points. It is remarkably free from Sulphur, and suitable for the purposes of Gas Companies, Locomotives, Steam Engines, Iron Manufacturers, and other parties requiring a very superior fuel.

For terms, apply at the office of the Company, Empire Buildings, No. 71 Broadway, Room 33, New York City.

Experimental Trial of Cameron Coal Company's Coal, from "Mount Hope" Vein,

Made at the Philadelphia Gas Works, March 20th, 1865, Charges, 100 lbs. each.

Pounds of Coal carbonized	8,600
Cubic feet of Gas made	16,285
" " per lb. Coal carbonized	4 52·100
Coke made, in pounds	2,430
" in bushels	63
Tar made, in gallons	22
Illuminating power, 5 feet Batwing—14 44·100 Candles.	

No. 34 Pine Street, New York, April 5, 1865.

George Warren, Esq., President Cameron Coal Co.:

Dear Sir—The analysis of the Coal I received from you, as from your "Mount Hope" vein, results as follows:

Volatile matter	26.00 per cent.
Carbon (of Coke)	69.40 "
Ash	4.60 " —100.00

The volatile matter consists of crude oil, ammoniacal water, and gas. The crude liquor product amounted to 14 gallons per ton; the illuminating Gas, 4,522 cubic feet per 1,000 lbs. coal. The Coal weighs 65 lbs. per bushel. The Coal is remarkably free from sulphur, and the Gas of excellent quality.

Yours, very truly,

(Signed,) A. K. & S. C. EATON, CHEMISTS.

Manhattan Gas Light Co., New York, April 24, 1865.

Mr. George Warren, President Cameron Coal Co.:

Dear Sir—The result of the examination of the Coal from the "Mount Hope" vein is as follows:

One ton (2,240 lbs.) yielded 9,500 cubic feet of 13 75·100 candle Gas, and 40 bushels of coke, weighing 1,550 lbs. The Coke has a good appearance, and burns very well, with but little hard clinker. Had the Coal been fresh mined, the result would have been better.

Analysis of the Coal.

Volatile matter	29 00 pr. ct.
Fixed carbon	67.20 "
Ash	3 80 " —100,00

Analysis of the Gas.

Olifiant Gas, hydro carbon vapors	4.75 pr. ct.
Carbonic oxide	5.75

Yours very respectfully,

(Signed) JOS. A. SABBATON, ENGINEER.

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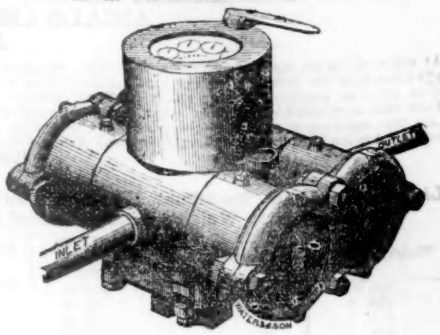
H. R. WORTHINGTON'S



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This Meter is also used for the measurement of Oil —it combines

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with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our largest cities.

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A Gas Engineer of thirteen years experience, desires a re-engagement. He refers, by permission, to Chas. Roome, Esq., President Manhattan Gas Co.; F. T. Willis, Esq., President Savannah Gas Co.: Ambrose L. White, Esq., Engineer Metropolitan Gas Co.

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At prices within the reach of every Church, School, Cemetery, Factory, or Farm in the land. Their use throughout the United States and Canadas for the past six years has proven them to combine most valuable qualities. Among which are TONE, STRENGTH, SONOROUSNESS, and DURABILITY OF VIBRATION, unequalled by any other manufacture. Sizes from 15 to 5,000 lbs., costing TWO-THIRDS LESS than other metal, or 25 cents per pound, at which price I warrant them twelve months. Old bell metal taken in exchange, or bought for cash. Send for a circular to the manufacturer,

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Weight of Bells.	Diameter.	Price of Bells without Hangings.	Price of Patent Hangings.	Price of Bell and Hangings complete.
225 lbs.	26 inches.	$56 00	$15 00	$71 00
275 "	42	69 00	18 00	87 00
375	36	94 00	22 00	116 00
450	84	112 00	25 00	137 00
600	03	150 00	30 00	180 00
750	39	188 00	35 00	225 00
1,000	64	250 00	42 00	292 00
1,200	48	300 00	45 00	345 00
1,400	50	350 00	50 00	400 00
1,600	52	400 00	54 00	454 00
1,800	55	450 00	60 00	510 00
2,000	58	500 00	62 00	562 00
2,500	60	625 00	72 00	697 00
3,000	63	750 00	85 00	835 00
3,500	66	875 00	87 00	962 00
4,000	69	1,000 00	100 00	1,100 00
4,500	72	1,125 00	113 00	1,238 00
5,000	75	1,250 00	125 00	1,375 00

List of Prices, Weights, and Sizes of Farm, Hotel, Steamboat, Schoolhouse, Shop, and Factory Bell.

These Bells are fitted with Yoke, Standard's Crank and Bolt, complete for use.

Weight of Bell and Hangings.	Diameter.	Cost of Bell and Hangings complete.
15 lbs.	7 inches.	$3 75
20	8½	5 00
35	10	8 75
50	12	12 50
75	16	18 75
100	18	25 00
150	20	37 50
200	22	50 00
250	24	62 50

Larger Sizes made to Order at 25 cents per pound.

Guarantee.—All Bells sold at the above prices WARRANTED against breakage by fair ringing, for TWELVE MONTHS from time of purchasing. Should one fail, a new bell will be given by returning the broken one.

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In case a Bell breaks after the expiration of the Warrantee, I allow HALF PRICE for the old metal.

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AN INDESTRUCTIBLE COATING FOR

IRON, TIN, and WOOD.

It consists of seventy-two parts Oxide of Iron, and twenty-eight parts Cement Lime Stone in the one hundred pounds.

It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals, without scaling, than any other paint in use.

It is a perfect cover for all kinds of iron, tin, or wood-work, out-houses, and canvas coverings. revents and arrests the corrosion of metals, and is not affected by the action of salt, gases, acids ammonia.

It hardens under water, as has been fully demonstrated by its application to gas-holders, by many f the largest gas companies in the United States; which companies having thoroughly tested its operties as herein claimed, pronounce in its favor over any other paints in the market, even though ld at double its price.

As a coating for patterns of iron or wood, when mixed with shellac, it is much superior to beeswax, oil, or shellac alone, as has been proven at the large founderies in the country.

For patching boilers and making joints, it is considered superior to red lead, or any other preparion.

For cleaning metals it takes the place of crocus, rouge, and emery, being better and cheaper.

This Paint requires no more oil than dry lead or zinc, and much less than the ordinary mineral paints. It is free from any waste, and possesses a spreading and covering power unequaled.

Terms, by the Barrel or Half Barrel, Five Cents per Pound.

☞A liberal discount made to parties purchasing by the ton.

A Barrel or Ton will be forwarded to any gas companies desirous of testing its qualities, for which there will be no charge if it does not give entire satisfaction as being the cheapest and most durable of all other Paints in the market.

Also, Prince's Imperial Black Paint, and Prince's Protoxide of Iron.

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GAS-HOLDERS,

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And all other descriptions of

Iron Work for Gas-Works, Water-Pipes, and Heavy Castings,

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THE MACKENZIE PATENT GAS EXHAUSTER

AND

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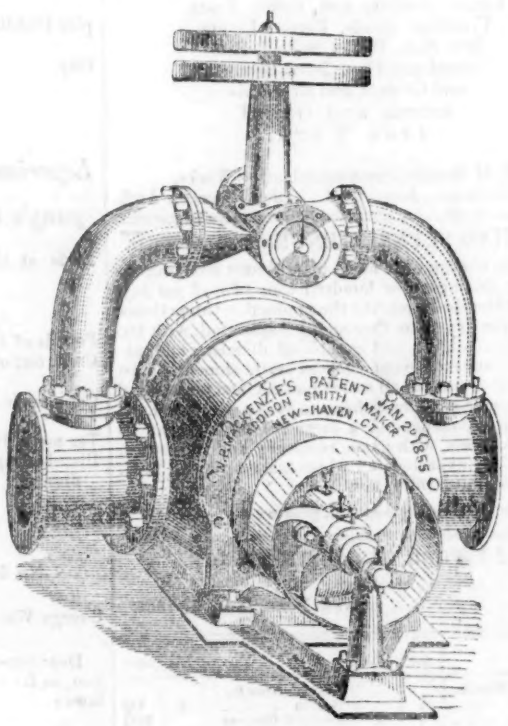

They are made to pass from 4,000 to 150,000 cubic feet of gas per hour; will increase the tion and illuminating power of the gas, and add very much to the durability of the retorts, e clay or iron. The Compensator obviates entirely the necessity of water-joints, is compact, dur cleanly, not liable to get out of order, self-acting, quiet, and certain in its operation.

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WEST VIRGINIA OIL & COAL CO.
71 Broadway, [$3,000,000.]
A. F. Bail, Pres. F. A. Miller, Sc.

Great Improvement
IN
Sewing Machines.
EMPIRE
SHUTTLE MACHINE!

Patented February 14th, 1860.

Salesroom, 536 Broadway.

This Machine is constructed on entirely new principles of mechanism, possessing many rare and valuable improvements, having been examined by the most profound experts, and pronounced to be SIMPLICITY and PERFECTION COMBINED.

It has a straight needle, perpendicular action, makes the LOCK or SHUTTLE STITCH, which will NEITHER RIP nor RAVEL, and is alike on both sides; performs perfect sewing on every description of material, from Leather o the finest Nansook Muslin, with cotton, linen, or silk thread, from the coarsest to the finest numbert.

Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as glass, and is

Emphatically a Noiseless Machine!

PRICE OF MACHINES,
COMPLETE:

No. 1, Family Machine, with Hemmer, Feller, Gauge, Braider, & Corder, complete. - - - $60
No. 2 Small Manufacturing, with Extension Table, $75
No. 3. Large Manufacturing, with Extension Table, $85
No 3. Large Manufacturing, for Leather, with Rolling Foot and Oil Cup, 100

One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

Agents Wanted in all Towns in the United States, where Agents are not already established. Also, for Cuba, Mexico, Central and South America, to whom a liberal discount will be given Terms, invariably CASH on delivery.

T. J. McARTHUR & CO.,
536 Broadway.

WILCOX & GIBBS SEWING MACHINE

It is entirely noiseless.
A patented device prevents it being turned backward.
The needle cannot be set wrong.
It received the Gold Medal of the American stitute in 1863.
InSend for a circular containing full information, notices from the press, testimonials from those using the machine, &c.

JAMES WILLCOX,
Manufacturer, 508 Broadway, New York

Principal Offices:
NEW YORK—508 Broadway.
BOSTON—323 Washington street.
PHILADELPHIA—720 Chestnut street.
CHICAGO—133 Lake street.
CINCINNATI—70 West 4th street.
LONDON—135 Regent street.
HAMBURG—44 Hermann street.
PARIS—82 Boulevard de Sebastopol.
ST. PETERSBURGH—15 Gorochovay.
VIENNA—9 Wildpretmarket.
BRUSSELS—12 Rue Croisade.
SYDNEY, AUSTRALIA—292 Pitt street

GAS-BURNERS.

T. G. ARNOLD,
MANUFACTURER OF
GAS-BURNERS
And Importer of SCOTCH TIPS,
224 and 226 West 21st street,
formerly No. 447 BROOME St., New York.
Mercury Cups, Portable Sockets, Burner Pillars, Burner Pliers, &c., &c.

C. GEFRORER,
Manufacturer of
GAS-BURNERS,
For Lighting and Heating Purposes.
GAS HEATING AND COOKING APPARATUS; FITTERS' PROVING APPARATUS, &c.
No. 111 South Eighth St.,
Philadelph a

WOODEN PURIFYING TRAYS
PATENT
Conically Slotted Solid Wood Sieves
FOR GAS PURIFIERS.

The Conically Slotted Solid Wood Tray or sieve was patented 21st October, 1862, and all persons are cautioned against purchasing them of any other person except the subscriber. The following companies are now using these trays.

Manhattan, New York,
Metropolitan,
New York
Albany,
Troy
Brooklyn, L. I.
Williamsburgh,
Citizens' ...
Baltimore, Md.
Louisville, Ky.

Orders received by mail or otherwise.
JOHN L CHEESMAN.
147 Avenue C New York City

WEST'S IMPROVED PUMPS, the most Simple, Durable, and Powerful, and the Cheapest in use.
J. D. WEST & CO.,
No. 40 Cortland street,

JOSEPH LENNIG,
1615, 1617, and 1619 Francis St.,
Above Ridge Avenue, Philadelphia, Pa.,
MANUFACTURER OF
WET & DRY GAS METERS,
STATION, SHOW, & EXPERIMENTAL METERS,
Photometers, Pressure Registers, Indicators, and Gauges, Governors Meter Provers, Centre Seals, Fluid Gauges, &c.
GAS APPARATUS
Of the most reliable and approved construction manufactured and on hand at the
UNION GAS METER WORKS.

D. PARRISH, Jr.,
GAS ENGINEER
And Contractor for Coal or Oil Gas-Works.
Estimates given for Gas-Works, Gas-Holders, or any Gas Apparatus.
205 1-2 Walnut st., Philadelphia, Pa.
Box 1956, Post Office.

To Manufacturers of Petroleum Gas.
For sale, Parrish's Patent Gas and Air Mixer, adapted to all works using Petroleum or other oils, by which rich Petroleum Gas is mixed, after it leaves the holder, with a proper proportion of air, giving it the greatest illuminating power, without smoke, through any burners. The apparatus being attached to the outlet pipe, requires no alteration of the works.

Apply at the Gas-Works of St. Nicholas Hotel, No. 63 Mercer st., N. Y., where one can be seen in operation; or address D. Parrish, Jr., St. Nicholas Hotel, New York city, or No. 1416 Arch street, Philadelphia.

TO GAS COMPANIES.

THE UNDERSIGNED DESIRES TO undertake the supervision of several small Gas-works, to visit and examine them as often as may be necessary; to obtain and inspect their coal, castings, fire-brick, and other materials; and to manage their general business in such a manner that they shall be under such supervision as is now attainable in large works, at much increased cost. Also, to advise as general Consulting Engineer and expert in practical chemistry.

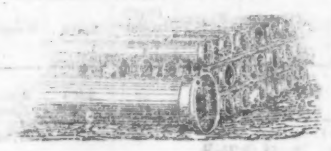
CHAS. M. CRESSON,
Late Asst. Engineer of the Philadelphia Gas-works
417 Walnut st., Philadelphia.

THE AUBIN
GAS-WORKS COMPANY,
Of Albany, N. Y.,

Now contract their works to make 10,000 feet of good Gas from 2,000 pounds of *hard* wood and 40 gallons of kerosene tar, *before payment can be demanded;* and the charcoal is worth the cost of the wood.

Many Village Gas Companies can be referred to.

A. D. WOOD & CO.,
MANUFACTURERS OF
CAST-IRON PIPE, RETORTS, &c
Office, 400 Chestnut street,
PHILADELPHIA.



Carrington & Co.'s
GENERAL
PURCHASING
AGENCY,
In Connection with all the Expresses,
No. 30 Broadway,
NEW YORK.

Established 1854.

Purchases to order ANY article wanted from New York, (or from Europe,) for ladies' or gentlemen's use or wear,—comfort or luxury—from a cameo to a cashmere—a sea ring to a steam-engine.

Goods purchased at current City prices, and forwarded by Express, or as directed.

Commission, Five Per Cent.

Remittances, with orders, can be made by Express if preferred, as all Express Agents will take orders, receipt for and forward funds, and see to return of Goods.

SPECIAL CIRCULAR.

The Adams Express Company, appreciating the need of a capable medium connecting with the various Express Lines, through which personal and other orders for goods from this city, can be satisfactorily supplied, do recognize CARRINGTON & CO GENERAL PURCHASING AGENCY as such a medium for filling orders for every description of goods wanted from New York, and commend it to the attention of the public, and of our general and local agents, recommending our agents to extend to it all reasonable aid, by facilitating the distribution of its cards and circulars, and making known the advantages it affords.

ADAMS EXPRESS CO.
By W. B. DINSMORE, Prest.
NEW YORK, June, 1864.

We cheerfully concur in the above recommendation of the Adams Express Company.
AMERICAN EXPRESS COMPANY,
By HENRY WELLS, Prest.
UNITED STATES EXPRESS COMPANY,
By D. N. BARNEY, Prest.
WELLS, FARGO & CO.,
NATIONAL EXPRESS COMPANY,
By J. A. ULLEN
HARNDEN EXPRESS,
By L. W. WINCHESTER, Supt.
KINSLEY & CO.'S EXPRESS,
By E. LITTLEFIELD, Supt.
HOPE EXPRESS COMPANY,
A. D. HOPE, Supt.
BREESE & CO.'S EXPRESS,
By STEPHEN BREESE, Supt
NEW JERSEY EXPRESS COMPANY,
By GEORGE R. DUNN, Sup

The Greatest Improvement yet in the Sewing Machine Art!

A CURIOSITY WORTH SEEING!

Please send for circular with sample of sewing.

These Improved Machines save ONE HUNDRED PER CENT. of thread and silk, and make the LOCK-STITCH alike on both sides.

They require no instruction to operate perfectly, except "the printed directions."

No change in sewing from one kind of goods to another.

And no taking apart to clean or oil.

Our NEW MANUFACTORY is now complete, with all its machinery and tools entirely new, and is already rapidly turning out Machines which for BEAUTY and PERFECTION of FINISH are not surpassed by any manufacture in the world.

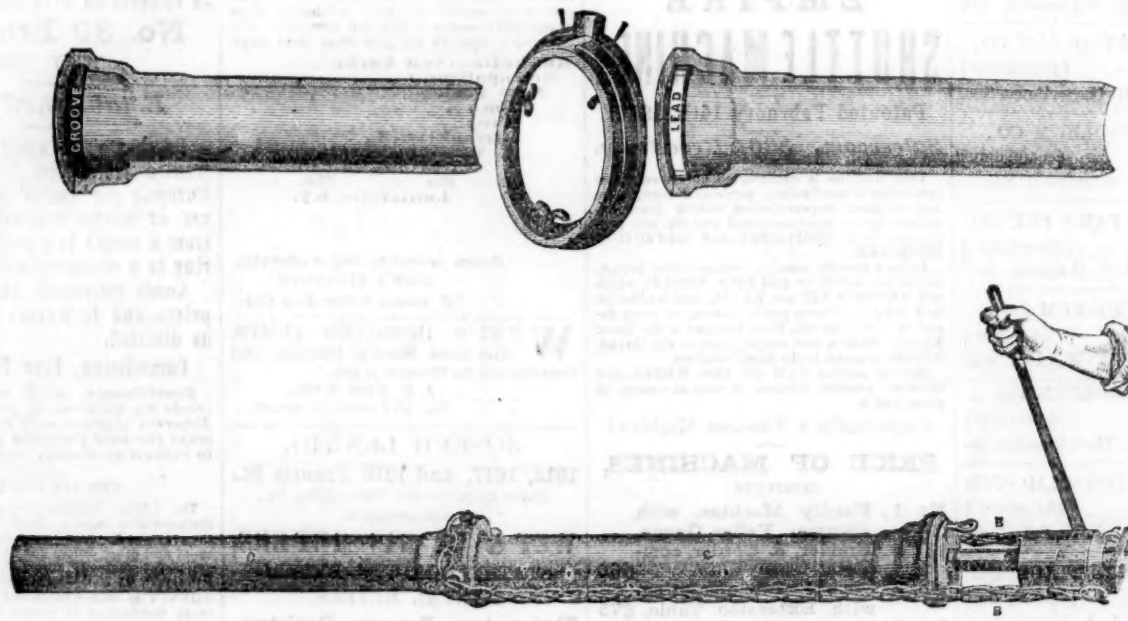
N. B.—Should any Machine prove unsatisfactory, it can be returned and money refunded.

Agents wanted in counties not ... vassed by ur own agents.

Finkle & Lyon S. M. Co.
No. 538 BROADWAY, NEW YORK

ROBBINS' PATENT GAS AND WATER JOINT.

The Proprietors of this unrivalled joint are now prepared to introduce it to general use, and to guarantee that, in all respects, it will fulfil perfectly all the requirements of either water, gas, or steam. It is a joint which remains in all situations absolutely tight.
The following illustrations, will give a good idea of the improvement.



For further information, or for prices and terms, which will be very reasonable, apply to

R. C. ROBBINS & CO., No. 218 FULTON STREET, NEW YORK.

LILLIE'S
CELEBRATED
Chilled and Wrought Iron Safes,
WROUGHT IRON FIRE-PROOFS,
LOCKS AND VAULT DOORS.

These Fire-Proofs are manufactured to supply a demand for Security Against Fire, less expensive than my celebrated and superior Chilled and Wrought Iron Burglar and Fire-Proof Safes.
They furnish similar and equal security to the Safes generally manufactured in the different cities, but are SUPERIOR to them in their Fire-Proof qualities and durability, the iron being effectually rotected from rust in any climate, and the Fire-proof not subject to lose its utility by age. This is an important advantage gained to the purchaser, as Safes often rust out and become worthless in two or three years.
To substantiate my position, those purchasing these Fire-Proofs are at liberty, by giving me due notice of time and place of trial, to test them by fire with any other Safe of the same size; and should they not prove superior, I will refund the money, or a new Fire-Proof, as the purchaser may decide.

LIST OF SIZES & PRICES OF WROUGHT IRON FIRE-PROOFS

	Outside.			Inside.			
No.	Height.	Width.	Depth.	Height,	Width.	Depth.	Price.
6	40	31	27	31	21	15	$150
5	34	21	26	24	21	14	125
4	31	27	25	22	18	18	110
3	30	24	24	21	15	12	100
2	28	22	23	20	14	12	75
1	24	19	20	17	11	10	50

Sample of Fire-Proof Safe at Office of the Am. Ad. Agency, 389 Broadway, N. Y.

PRICE LIST.
LILLIE'S CELEBRATED CHILLED & WROUGHT IRON SAFES.

BANK, FIRE, AND BURGLAR SAFES.
Folding Doors, D Lock.

	OUTSIDE.			INSIDE.			
No.	Height.	Width.	Depth.	Height.	Width.	Length.	Price.
	In.	In.	In.	In.	In.	In.	
1	66	50	29	54½	39	18	$950
1½	59	50	26	48	39	15	800
2	53	44	27	42½	33	15	600

MERCANTILE F AND B SAFES.
Folding Doors and Monitor Locks.

3	50	42	27	40	32	16	$500
4	46	42	27	36	32	16	450
4½	38	46	27	28	36	16	450
5	42	38	27	31½	27½	15	350

Single Doors and M. Lock.

6	38	35	26	27½	29½	15	$250
7	34	31	26	24	24	14	200
8	31	28	24	21	18	13	175
9	30	24	24	21	15	12	140
10	26	22	22	19½	18½	12	120
11	24	20	18	17	17	10	100

HOUSE SAFES

SIDE BOARD	$600
DINING ROOM	350
PANTRY (No. 1)	275
PANTRY (No 2)	150
DUODECAGON BANK LOCK	100
MONITOR SAFE do.	50
SAFE do.	10

NATIONAL BANK SAFES,
With 2 Inside Burglars and 1 D and 2 M Locks.

	OUTSIDE.		INSIDE.			
No.	Height.		Het	Width.	Depth.	Price.
	In.		In.	In.	In.	
1	68		55	39	18	$1,200
2	61		48	39	18	1,050
3	57		42½	33	18	900

BANK VAULT BURGLAR SAFES,
With Folding Doors and D Lock.

0	68	53	27	64	48	20	$1,000
0½	61	56	27	55	46	20	800
1	57	47	27	49	40	20	600

BANK VAULT BURGLAR SAFES,
Single Doors and D Lock.

2	53	32	26	49	28	
	42	36	23	38	32	19
4	36	31	20	32	27	
5	30	24	18	26	20	14

BANK VAULT DOORS AND FRAMES,
D and S Lock.

No.	Height clear.	Width clear.	Depth adjustable.	Price.	Weight.
	In.	In.	In.		
1	72	27	20	$400	3,000
2	72	27	20	275	1,500

Orders received and filled at net cash prices, by the AMERICAN ADVERTISING CO., 389 Broadway, New York. All Safes shipped from Troy free of cartage.
Business Depart., E. ALVORD. *Corresponding* OWLER

WEST'S IMPROVED PUMP.
Anti-Freezing, Double-Acting, Forcing, and Lifting

These Pumps have now been in general use a number of years, and give better satisfaction than any other, and are recommended as

THE BEST!

by CAPTAIN ERICSSON and other eminent engineers. We can refer to thousands using them, a guarantee that all will recommend them. They are more simple in construction, and work easie and cost less than all others.

"Our readers will find the double acting, improved pump of J. D. West & Co., one of the best in the market. It is very simple, works to a charm, so that any child may use it; throws a steady continuous stream, and does not freeze in the coldest exposures, and is unusually cheap. We say this knowingly, and give the testimony of our own accord, without the knowledge or request of the proprietor."—*New York Evening Post, July 1st*, 1863.

"J. D. WEST & Co: We are pleased to state that the Pumps we had of you about a year ago, have been in constant use, twelve hours each day, and raise for the use of our woolen factory, about 180 gallons per minute. They work with but little power, compared with pumps we have used before, and do not get out of repair, and are satisfactory in all respects.
"DUNLAP MANUFACTURING CO."

Solon Robinson to the Farmers' Club.
Jan. 23.

"No farmer who owns a well or cistern can possibly afford to be without an iron pump. It should be a once a suction and force pump—a perfect little fire engine—such a one known as 'West's Improved Pump.' I speak of this Pump because I happen to know it....to be very simple, durable, powerful and cheap, and it don't freeze up, nor get out of order once a year....I know this, and think I may be doing the farmers good by speaking of it....A boy ten years old can work it, and throw a continuous inch-and-a-quarter stream....It can be made to work in deep wells as well as in shallow ones."

"The undersigned having to use "West's Improved Pumps," cheerfully recommend them as simple, durable, and powerful in raising and throwing water, and for their ease of action, security against frost, and low price, we believe them superior to all others.
"WARREN LELAND, Met. Hotel, N. Y.
"J. W. POMEROY, Yonkers, N. Y.
"JOHN MESSEREAU, N. Y.
"DOMINICK LAWRENCE, Westchester."

From the New York Observer.

"We have had in use for months past one of West's Pumps, which has given us more satisfaction as a force and lifting pump than any we have ever used. It is one of great power, and well adapted for ship's decks, mines, factories, greenhouses, graperies, etc. *The Mining Chronicle and Railway Journal* says: 'It is recommended for its extreme simplicity of construction, great strength, and consequent durability and cheapness of repair. There is no stuffing-box—the pressure being held by a cup packing, like that upon the working-piston, working in a cylinder, fitted for the purpose within the upper air chamber—which we think a great improvement, as stuffing is so liable to be deranged and leak under strong pressure, to say nothing of the loss by friction incident thereto. It has also two air-chambers; thus the action of the valve is cushioned upon both sides by air—preventing water-hammer and vacuum-thump. The valves are very accessible and simply and cheaply repaired. They work much easier than any pump we have ever seen; the 4-inch cylinder being worked by children in wells 100 feet deep, and as they are extremely cheap, as well as simple and strong, we freely recommend them.'"

"CAMBRIDGE MINE, N. C., June 15, 1863.
"J. D. WEST & Co.—Gents: The Pump which I ordered for our mine is received, and put to work in our underlay shaft, which we are sinking. We find that one man will, with ease, lift 50 gallons per minute. We lifted in three and a half hours all the water in the shaft, which measures seven by twelve feet and thirty feet deep, and it was full when we commenced. It answers our expectations in every respect, and our workmen are highly pleased with it. It will do great service with but trifling expense for repairs.
"Yours, respectfully, BURR HIGGINS."

"This may certify, that I have been using, at my manufactory, for the last four years, 'West's Improved Pumps.' I now have in use three of said Pumps, one of which is kept constantly at work, 24 hours of each day (save Sunday), and has been running for the past two years. I pronounce them, unhesitatingly, the best Pumps that have been brought to my notice, having used many others previously. They are simple in their construction, and not easily disarranged.
"N. Y., Oct. 10, 1860. JAS. A. WEBB."

We have plenty more such certificates, but think these are enough. For Pumps, Hose, Pipe, etc., address or call upon

J. D. WEST & CO., 40 Cortlandt st., New York.
Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway

EDDY'S

Kerosene Cooking & Heating

STOVES AND RANGES.

THESE COOKING STOVES WILL

☞ *Bake, Boil, Stew, Fry and Roast,*

With the greatest economy and facility, and without heating the room in which they are used. They are perfectly simple, operating like an ordinary Kerosene Lamp with a chimney, and are the only Kerosene Stoves that burn without smoke or odor.

"We have been perfectly astonished to see what a labor-saving, dirt saving and heat-saving institution is EDDY'S PATENT KEROSENE STOVE. Taking the cost of running it, and the result attained, it is the best patent in the market."—*Worcester Daily Spy.*

Our Heating and Cooking Stoves are very convenient and economical, especially where a fire is required but a few hours at a time.

Orders for Stoves may be sent through American Advertising Agency, 389 Broadway, New York.

LESLEY & ELLIOT,
Manufacturers, No. 494 Broadway, New York.
Send for Illustrated Circular. (136

KNITTING MACHINES

FOR

Families and Manufacturers,

☞ *Something New and Invaluable for Family Use.*

We offer the public the simplest, strongest and best Knitting Machine in the world.

It occupies but little space—is portable and can be attached to a stand or table, weighs about 40 lbs.

It will knit a variety of Stitches—the breakage of needles is trifling—the cost of needles is insignificant and the most delicate material can be knit pure and spotless, as the needles are not oiled.

Orders for Machines may be sent through the American Advertising Agency,
389 Broadway, N. Y.
Send for a Circular—Agents wanted.
DALTON KNITTING MACHINE CO.,
137] 537 Broadway, N. Y.

WEED'S

HIGHEST PREMIUM

Shuttle Sewing Machine

Has only to be seen and operated to be Appreciated.

Call and see for yourself before purchasing. Please bring samples of various kinds of thread, (such as is usually found at stores,) and various kinds of fabric, which you know the former most popular Sewing Machines either cannot work at all, or, at best very imperfectly.

SUPERIORITY.

over any other Machine in the market will be seen at a glance.

1st. It runs easily and rapidly, and is so constructed as to endure all kinds of hard usage.

2d. No breaking of threads in going over seams.

3d. No imperfect action of the feed at uneven places in the work.

4th. The Weed-stitch catches of itself, and will sew from the finest lace to the heaviest leather, and 200 cotton to coarse linen thread.

5th. The Weed Machine will do beautiful quilting on the bare wadding, without using inner lining; thus leaving it soft as if done by hand.

6th. The variety of fancy work that can be done on the

WEED MACHINE,

with so little trouble, makes it equal, if not superior, to six machines combined; for instance, it Binds, Hems, Tucks and Sews on the band at the same time, and in face, the

WEED NO. 2 MACHINE,

as before stated, is equivalent to a combination of any six ordinary machines.

Orders for Machines may be sent through the American Advertising Agency, 389 Broadway, N. Y.

Below we give a few prices:

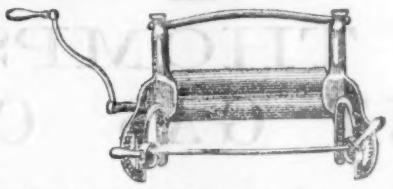
No. 2. Oil Black Walnut, Ornamented with Hemmer.	$60,00
No. 2. Oil Black Walnut, Hall Case, Ornamented, with Hemmer.	65,00
No. 3. Extra Oil Polished Black Walnut, Half Case, Large Table beautifully Ornamented.	75,00

WEED SEWING MACAINE Co.,
136) 506 Broadway, New York.

PUTNAM'S CLOTHES WRINGER.

IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.



No Wood-work to Swell or Split. No Thumbscrews to get out of order. Warranted with or without Cog wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*
That a *simple* machine is better than a complicated one.
That a Wringer should be *self-adjusting, durable, and efficient.*
That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.
That wood soaked in water will *swell, shrink,* and *split.*
That wood-bearings for the shaft to run in *will wear out.*
That the Putnam Wringer, with or without cog wheels, will *not tear the clothes.*
That cog-wheel regulators are not essential.
That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.
That all who have tried it pronounce it the *best* Wringer ever made.
That it will wring a thread or a bed-quilt *without alteration.*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam's Wringer. Test it *thoroughly* with *any* and any others, and if not entirely satisfactory, return it;

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,

JOHN W. WHEELER, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*

JOHN C. LEFFERTS, No. 100 Beekman St.

NEW YORK, *January,* 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any,* to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, $9, and $10.
Sample Wringers sent, express paid, on receipt of price.
Manufactured and sold, wholesale and retail, by
PUTNAM MANUF'G CO.,
13 PLATT STREET, New York,
BENNINGTON, Vt.,
CLEVELAND O.

WATER AND GAS PIPE.

The Boston Bituminized Pipe Company,

Are now manufacturing and prepared to take orders, for their PATENT PIPE, (from 2 to 12 inches in diameter,) as a substitute for Iron, Copper, Lead, &c., for the conveyance of WATER, GAS, SEWERAGE, &c. &c.

From the testimonials received, and the entire satisfaction it has given those having it in use, we feel warranted in claiming for this pipe over that of any other, the following advantages, viz.:

It is much CHEAPER—has great strength (it having been tested to 500 lbs. to the square inch,) combined with LIGHTNESS, costing less for transportation; the joints are easily made and perfectly tight; it does not expand or contract from different degrees of temperature, and is free from *CORROSION* or *CONCRETIONS* forming; does not impart any taste or injurious properties to water, and as far as anything can be said to be indestructible, we deem this to be.

As a GAS PIPE, we say it has no superior. The Lowell Gas Light Co., purchased and laid some of this Pipe last year, and have likewise subjected samples to a test of four month's duration in their dry lime purifiers, with the most satisfactory results, in fact establishing beyond a doubt, its perfect adaptation to the wants and requirements of Gas Companies, specimens of which, together with the statement of O. E. Cushing, Esq., Agent Lowell Gas Light Co., who made these experiments, I shall be pleased to show, and give all other needed information, by applying in person, or by letter, to JOHN L. WEBSTER, Treas.,
Boston Bituminized Pipe Co.,
127] No. 2 Pearl st. House, Boston.

AMBROSE SPENCER GILCHRIST.
(LATE CAPT. U. S. V.,)
CIVIL, MINING
AND ARCHITECTURAL ENGINEER,
No. 200 BROADWAY, Office 12.
New York.

New York, April 18th, 1864.

* * * * * *

We respectfully invite your attention to and consideration of the justly celebrated and reliable remedy for DYSPEPSIA, HEARTBURN, DEBILITY and PROSTRATION. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

"GOLDEN BITTERS."

We risk nothing when we term them a *valuable preparation,* for they are one of the few articles of the present day which are not a humbug; and we are willing and able to satisfy any person or persons who will call upon us, that the celebrated "GOLDEN BITTERS" are a genuine *bona-fide hygienic* article. It is the wish of the proprietors that the virtue of the article be tested before condemning. A decision of their merits by any one who has tried them, is worth a million of purchased bogus testimonials.

For Creating a Healthy Appetite

they are invaluable, and are unequalled as a TONIC. They are mild in their action, and operate by giving *vigor* and *strength* to the system,—not by any change they produce in the solids, but through the medium of the living principle.

They are Purely Vegetable,

being composed of Gentian Root, Calamus, Sassafras, and many other remedial agents of the Vegetable world, all preserved in Jamaica Rum and Sherry Wine.

As a Beverage,

They are the most *wholesome, invigorating* and *palatable* stimulant ever offered to the public. And the fact of their being prepared chemically and scientifically, precludes the possibility of a bitter, unpleasant taste, common to Bitters generally offered for sale. We especially recommend them to LADIES, and particularly to those suffering from

DEBILITY, WEAKNESS, AND PROSTRATION.

Half a wine glass of these "Bitters" three or four times a day, will produce a remarkable healthy change in persons greatly debilitated.

The "Golden Bitters" have been tried and not found wanting. They are put up in our own *Patent* quart bottles, and for sale by Druggists, Grocers, &c., throughout the world. Each bottle bears a fac-simile of the signature of Hubbel & Co.

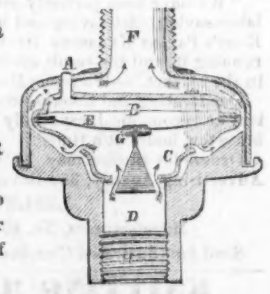
GEO. C. HUBBEL & Co, Sole Proprietors,
CENTRAL DEPOT, American Exp. Building, New York.

THE GOLDEN BITTERS.—We are not an advocate of stimulants of an alcoholic character; indeed we deprecate this "daily tonic" idea—this "morning toddy" which we see offered in all sorts of shapes as a recuperator, invigorator, revitalizer, &c. As a rule all artificial stimulants are dangerous remedies, and must be taken into the system as you would mercury or arsenic, in very small doses. But we have had an opportunity to try the now well-advertised article known as Hubbel's Golden Bitters, and are frank to say that where the system needs building up, where a stimulant is required to aid nature in restoring a lost appetite and infusing a vigorous action to the debilitated functions, we can recommend these Bitters. Hubbel's Golden Bitters are evidently intended to improve the debilitated human system, rather than to tickle the palate, and are therefore a harmless and safe remedy to keep in the house.—*New York Weekly Day Book.*

NOTICE TO GAS COMPANIES AND GAS CONSUMERS

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas-light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SANDS, Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "
GEO. H. KITCHEN, Inspector of Gas Meters, N. Y
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the Office, 111 Pearl street, where they can see the operation by pressure guage and test meters

M. L CALLENDAR, Agent
Office, 111 PEARL STREET.

THE AMERICAN METER CO.

Organized under the General Manufacturing Laws of the State of New York.

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

512 WEST TWENTY-SECOND STREET, NEW YORK,
ARCH AND TWENTY-SECOND STREETS, PHILADELPHIA,
No 23 WEST STREET, BOSTON will meet with prompt attention.

HARRIS & BROTHER, PRACTICAL GAS METER MANUFACTURERS,

Continue, as heretofore, at their old Establishment, **No. 1117 CHERRY ST., PHILADELPHIA,** to Manufacture

WET AND DRY GAS METERS, and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicited, and promptly attended to, by

HARRIS & BRO., No. 1117 Cherry st., Phila.

Messrs. Harris & Brother, Philadelphia Gas Works, February 14, 1857.

Dear Sirs—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality; the number furnished by you to these works is over 5,000.

JOHN C. CRESSON, Engineer.

Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.

This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entire satisfaction in point of workmanship and accuracy of registration; they are surpassed by none, and equalled by few manufactories in the Union; we have used meters made by other establishments, but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.

G. S. HOOKEY, Superintendent of the Gas Light Company of Augusta, Ga,

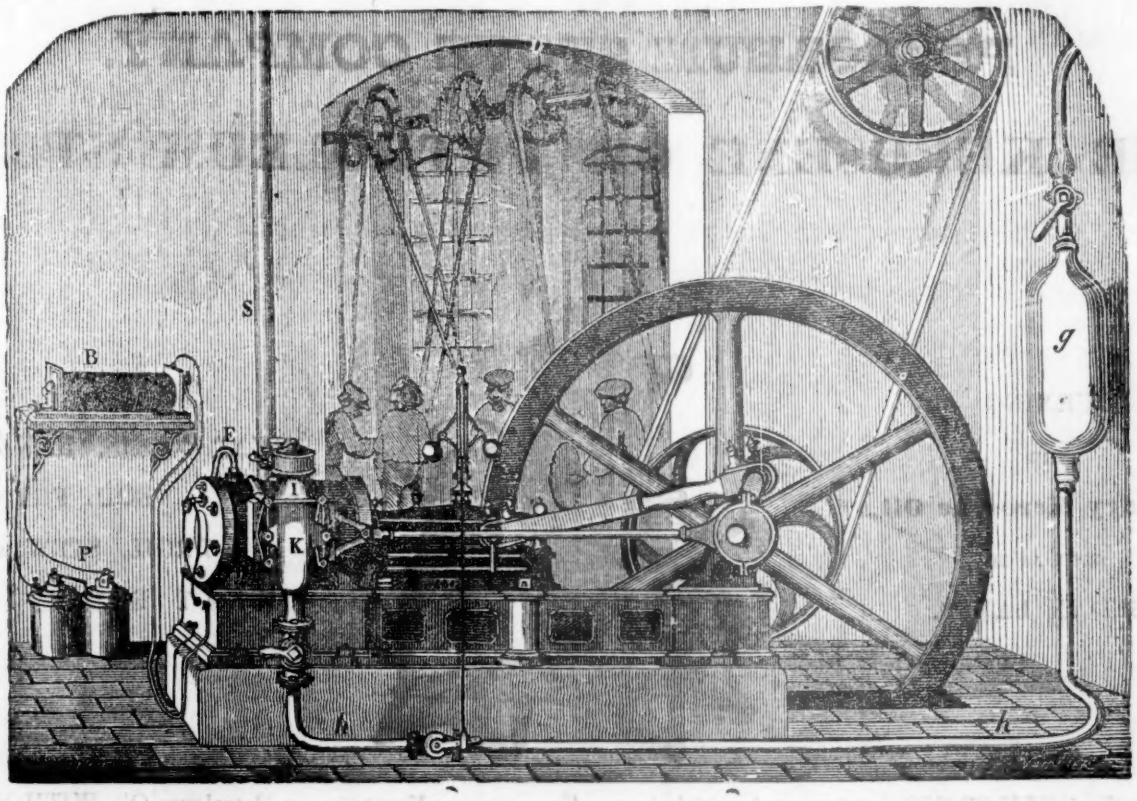
Messrs. Harris & Brother, Philadelphia. Philadelphia, March 4, 1858.

Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanship all we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly, yours, BIRKINBINE & MEARS.

Messrs. Harris & Brother. March 14, 1857

Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory and take pleasure in expressing my opinion of their correctness. On several occasions I have taken your meters apart, and found the materials used in the manufacture of the same to be as fine quality as used in those imported from Europe, or made by any of the manufacturers in the United States.

Respectfully Yours, GEORGE WIEGAND,
Inspector of GasFittings, Philadelphia



MOTEUR—LENOIR.

LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end of the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distanc from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two horse and a half horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

THE LENOIR GAS ENGINE

Requires no Fire and makes no Smoke,

No Noise, no Dirt, and is thoroughly safe.

It is propelled by the expansion of Air, dilated by the combustion of Gas within the cylinder, ignited by the

ELECTRIC SPARK

PETROLEUM STOVE COMPANY.

THE KEROSENE OR PETROLEUM STOVE.

BURNING

THE

Ordinary Kerosene Oil,

SUCH AS IS

USED IN LAMPS.

HEAT ROOMS, BAKE, ROAST,

BOIL, FRY,

BROIL, STEW, AND

HEAT FLAT IRONS.

This is the ONLY STOVE, yet invented, which burns the common Kerosene, or Petroleum Oil, WITHOUT A WICK and is capable of doing all the COOKING, BAKING, WASHING and IRONING of a large family, as quickly as any coal or wood stove—is neat in appearance, and clean, MAKING NO DIRT OR ASHES—requires no room for stowing wood and coal, is light and portable, and may be used in any convenient place in or out of the house, and is guaranteed to be perfectly safe and free from explosion. This Stove must not be confounded with other Stoves offered under the name of Petroleum Stoves, which do not, and cannot, under any circumstances, burn the ordinary Kerosene, or Petroleum Oil, but burn Naptha, an article as dangerous as gunpowder, in the hands of persons unacquainted with its properties.

☞This Stove is now in use in the Refreshment Saloon at the Fair of the American Institute. Also, may be seen in operation at the Office of the Petroleum Stove Co., 171 Broadway, Room 12, where Orders will be received, and State and County h ts disposed of on liberal terms.

NATHANIEL FORD, Sec'y. *S. T. McDOUGAL, Pres't.*

GROVESTEEN & CO.,

PIANO-FORTE MANUFACTURERS.

499 BROADWAY, NEW YORK.

The attention of the public and the trade is invited to our New Scale Seven Octave Rosewood Piano-Fortes, which for volume and purity of one are unrivalled by any hitherto offered in this marked. They contain all the modern improvements, French, grand action, harp pedal, ron frame, over-strung bass, etc., and each instrument being made under the personal supervision of Mr. J. H. Grovesteen, who has had a practical experience of over thirty years in their manufacture, is fully warranted in every particular.

THE "GROVESTEEN PIANO-FORTE"

Received the highest award of merit over all others at the Celebrated World's Fair!

where were exhibited instruments from the best makers of London, Paris, Germany, Philadelphia, Baltimore, Boston, and New York; and also at the American Institute for five successive years, the gold and silver medals from both of which can be seen at our warerooms.

☞By the introduction of impro ements we make a still more perfect Piano-Forte, and by manufacturing largely, with a strictly cash system, are enabled to offer these instruments at a price which will preclude all competition.

PRICES.

No. 1, Seven Octave, round corners, Rosewood Plain Case, $275.
No. 2, Seven Octave, round corners, Rosewood Heavy Moulding, $300
No 3, Seven Octave, round corners, Rosewood Louis XIV, style $325, a fac-simile of the accompaning cut.

TERMS—NET CASH, IN CURRENT FUNDS. Descriptive Circular sent free.